COMMODORE user

Incorporating Vic Computing An EMAP Publication Volume 2 Issue 1 October 1984 UK Price 85p

HOME CONTROL-PART 2

64 MAKES MUSIC

TASKSET PROFILED



ADVENTURING FOR REGULARS

KNOW YOUR RIGHTS

Exclusive Plus/4 preview

REVIEWS: COMMODORE 8296 • 1541 EXPRESS • MICRO MAGPIE

WIN £25,000 AND SAVE THE WORLD

Eureka!™

250 K OF PURE MYSTERY BY IAN LIVINGSTONE



Spectrum 48K or Commodore 64 (Turboload)

Full-colour booklet, packed with cryptic clues to help you unravel the mystery — and win the £25,000 reward

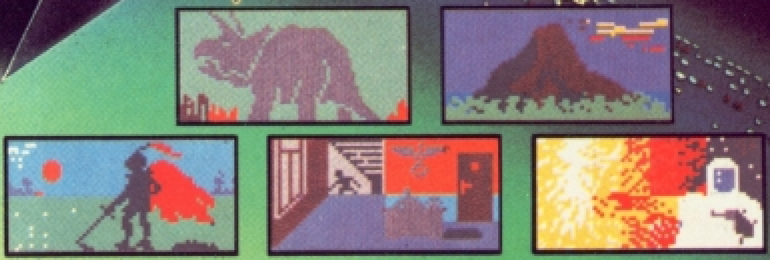
Music and sound effects built in

- 5 complete Adventures, each with its own Arcade, in one multi-load mega-program: "Eureka!" is *the* ultimate computer Epic.
- Epic in scale: "Eureka!" spans five eras of history! You battle against the dinosaurs, outwit Nero and his gladiators, join the Knights of the Round Table, escape from Colditz, and finally into 1984 defeat the evil master of the Caribbean who is holding the world to ransom.
- Epic in sheer size — there's more than 250K for you to get yourself killed in.

5 PROGRAMS IN ONE

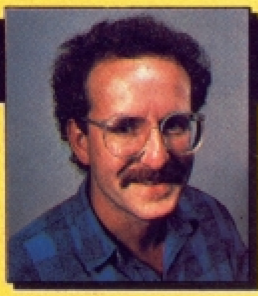
- All 5 Adventures are linked — but you can choose to play them separately. And they all have REAL TIME built in. So if you don't think fast, you wind up as a pterodactyl's lunch, die of over-exertion in a Roman orgy, or just lose your mind...
- "Eureka!" is not just an Epic — not just an Adventure. At the start of each historical era, you face an Arcade Action test, to decide your strength level for the Adventure to come.
- The better your score, the stronger and faster you'll be.
- And it'll keep you on your toes, with constantly-changing, static and moving graphics. Brilliant music and sound effects add to the excitement.
- As part of the "Eureka!" pack, you receive a full-colour illustrated booklet, containing cryptic riddles and mysterious illustrations. Using booklet and screen *together*, you steadily unravel the clues and build up a secret phone number piece by piece.
- If you're first to ring it, you save the world and collect the £25,000!
- Quite a package! And to give everyone a fair chance, "Eureka!" will be released simultaneously worldwide on October 31st, 1984. No packs will be available until that date. All orders received by mail or phone by 26th OCTOBER will be despatched by post on the 31st right across the world. So order now, and be one of the first off the mark.

THEN THE RACE IS ON!!!



High quality, full-colour, static and moving graphics

Just clip the coupon. Or, for even faster action, order by Credit Card on the "Eureka!" Telephone Hotline 01-460 6000.



DEVISED BY IAN LIVINGSTONE

The storylines for "Eureka!" are by Ian Livingstone, whose "Fighting Fantasy" books have sold over 2,000,000 copies. He's dreamed up some rather nasty tricks and twists for you in this Epic, because he has also devised the cryptic clues and conundrums in the booklet that goes with the program. He's the one who knows the answers.

"Eureka!" was programmed by Andromeda teams led by Hungarians Donát Kiss and András Császár. It took the equivalent of 5 YEARS to create, and the skills of 4 graphic artists, 2 musicians and a professor of logic too. We told them to stretch the hardware's capabilities, and make sure you were kept awake for hours!! They've done it...

£7 BONUS

When you order "EUREKA!" before 26 OCTOBER 1984, you receive an additional bonus; £7 voucher off the price of the **TROJAN LIGHT PEN** from PSL MARKETING. Normal price is £17.75. You buy it for just £10.75.

Eureka!™

Send your order now to:
"Eureka!", FREEPOST, Dept 400, Mount Farm, Milton Keynes, MK1 1HQ

NO STAMP NEEDED

To: "Eureka!", FREEPOST, Dept 400, Mount Farm, Milton Keynes, MK1 1HQ

DOMARK

Please send me "Eureka!" packs, complete with cassette, full-colour booklet, instructions and rules, at **£14.95** each PLUS 55p post & packing. If my order is received before 26 October 1984, I will receive a free £7 voucher towards a Trojan light pen. Please allow 14 days delivery for orders received after 26 October.

MY COMPUTER IS	No. Ordered	Total at £15.50
COMMODORE 64		
SPECTRUM 48K		
	TOTAL £	

24 HOUR PHONE HOTLINE NUMBER 01-460 6000 For Credit Card Orders

I enclose payment by cheque/P.O. payable to DOMARK LTD.

OR Please charge my Credit Card VISA ☐ ACCESS ☐ AMEX ☐

Card Number ______

Expiry Date ______ Date ______

Name ______ Signature ______

Street ______

Town ______ Post Code ______ CU

The race for the £25,000 starts on 31 Oct 1984 and closes on 31 Dec 1985.

Domark Ltd., 228 Munster Road, London SW6. Reg. No: 1804186 (England).

Computerama 64

the source

Title	Format	Price
ALLIGATA		
Blagger	C	7.95
Guardian	C	7.95
Loco	C	7.95
Panic Planet	C	7.95
Son Of Blagger	C	7.95
A&F		
Chuckie Egg	C	7.90
ADVENTURE INTERNATIONAL		
Pirate Cove	C	9.90
Voodoo Castle	C	9.90
ANIROG		
Galaxy	C/D	7.95/ 9.95
Jungle Drums	C/D	7.95/ 9.95
Flight Path 737	C	7.95
Krazy Kong	C/D	7.95/ 9.95
House Of Usher	C/D	6.95/ 9.95
Moon-Buggy	C/D	7.95/ 9.95
Skramble	C/D	7.95/ 9.95
Cybotron	C/D	7.95/ 9.95
Petch	C/D	6.95/ 9.95
Ice Hunter	C/D	6.95/ 9.95
Zodiac	C/D	7.95/ 9.95
AUDIOGENIC		
Motor Mania	C	8.95
Bonzo	C	8.95
Burnin Rubber	C	8.95
Pegasis	D	12.95
Frantic Freddie	D	12.95
Grand Master Chess	C	8.95
Alice In Video Land	D	12.95
AVS		
System 1500	C	12.95
U.S. GOLD		
Forbidden Forest	D/C	12.95/ 8.95
Caverns Of Khafka	D	12.95
Aztec Challenge	D/C	12.95/ 8.95
Slinky	D/C	12.95/ 8.95
Pooyan	D/C	12.95/ 9.95
O'Rileys Mine	D/C	12.95/ 9.95
Beach-Head	D/C	12.95/ 9.95
Solo Flight	D/C	12.95/ 9.95
Gustbuster	C	9.95
Quest For Quintana Roo	C	9.95
Rolloverture	C	9.95
Dallas Quest	C	9.95
BUBBLE BUSS		
Hustler	C	6.99
Kick-Off	C	6.99
Widows Revenge	C	6.99
Flying Feathers	C	6.99
Bumpin Buggies	C	6.99
BIG G		
Meggahawk	C	6.95
Zylogon	C	6.95
BUG-BYTE		
Twin Kingdom Valley	C	9.95
C.D.S.		
Colossus Chess 2.0	C/D	9.95
C P SOFTWARE		
Pinball Wizard	C	6.95
CREATIVE SPARKS		
Black Hawk	C	7.95
Slurpy	C	7.95
Tower Of Evil	C	7.95
DURRELL		
Scuba Dive	C	6.95
Harrier Attack	C	6.95
Jungle Trouble	C	6.95
EUROBYTE		
Mr Mephisto	C	6.95
IMAGINE		
Cosmic Cruiser	C	5.50
Pedro	C	6.90
INCENTIVE		
Splat!!	C	6.50
INTERCEPTOR		
Arabian Knights	C/D	7.00/ 9.00
Spider & The Fly	C/D	7.00/ 9.00
China Miner	C/D	7.00/ 9.00
Wheelin Wallie	C/D	7.00/ 9.00
Burger Time	C/D	7.00/ 9.00
Aquanaut	C/D	7.00/ 9.00
Wallie Goes To Rhymeland	C/D	7.00/ 9.00
ISP		
Scope	C/D	17.95/ 18.95
K-TEL		
City Attack	C	6.95
It's Only Rock-n-Roll	C	6.95
LLAMASOFT		
Hovver Bovver	C	7.50
Mutant Camels	C	7.50
Mutant Camels Revenge	C	7.50
Sheep In Space	C	7.50
LIVEWIRE		
Grid Trap 64	C	7.95
Jumping Jack 64	C	7.95
Triad	C	7.95
MERLIN		
Crazy Caveman	C	7.95
Blue Moon	C	7.95
Pixie Pete	C	7.95
Orange Squash	C	7.95
MELBOURNE HOUSE		
Hobbit	C+B	14.50
Horace Goes Skiing	C	5.95
Acos+	C+B	8.95

Title	Format	Price
MICRODEAL		
Space Shuttle	C/D	8.95/ 12.95
Cuthbert Goes Walkabout	C	8.00
Cuthbert In Space	C/D	8.00/ 9.95
Cuthbert In The Jungle	C/D	8.00/ 9.95
Danger Ranger	C/D	8.00/ 9.95
MICRO POWER		
Cybertron Mission	C	7.95
Felix In The Factory	C	7.95
Ghouls	C	7.95
Swoop	C	7.95
MIRRORRSOFT		
Caeser The Cat	C	8.95
OCEAN		
Hunchback	C	6.90
Mr Wimpy	C	6.90
Chinese Juggler	C	6.90
Cavelon	C	6.90
PARAMOUNT		
Outback	C	7.50
Meggawarz	C	7.50
PEAKSOFT		
The Boss	C	8.95
QUICKSILVA		
Bugaboo The Flea	C	7.95
RICHARD SHEPHERD		
Urban Upstart	C/D	6.50/ 9.50
SOFTWARE PROJECTS		
Manic Miner	C	7.95
Dinky Doo	C	7.95
SOFTEK		
Bug Squad	C	7.95
Ugh !	C	7.95
Zoids	C	7.95
Quak Attack	C	7.95
SOLAR SOFT		
Bizy Beezzzz	C	7.95
TASK SET		
Jammin	C/D	7.95/ 9.95
Pipeline	C/D	7.95/ 9.95
Gyropods	C/D	7.95/ 9.95
Bozo's Night Out	C/D	7.95/ 9.95
TERMINAL		
Super Dogfight	C	7.95
Super Gridder	C	7.95
Star Commando	C	7.95
Plumb Crazy	C	7.95
Triple Tournament	C	7.95
VIRGIN		
Falcon Patrol	C	6.95
Ambush	C	6.95
VISIONS		
1994	C	6.95
Breedons Basic	D	39.95
Dare Devil Dennis	C	6.95
Demolator	C	6.95
Nifty Lifty	C	6.95
Dos	D	19.95
PRINTERS FOR 64		
Commodore 1526		345.00
1520 4 Colour Printer Plotter		99.95
Commodore MPS-801		229.00
Epson RX80		269.00
Epson RX80 FT		299.00
Epson FX80 Package		419.00
Juki 6100 Daisywheel		448.00
Centronics – Monitor Interface		29.95
Centronics – Cassette Driver		9.95
Centronics – Cable		19.95
MONITORS		
Commodore 1701 Colour		225.00
Fidelity 14" Colour		199.00
Senyo 12" Green		99.00
ACCESSORIES		
THE POWER OF 64 CP/M		
Commodore 64 Z-80 Second processor Cartridge Complete with CP/M 2.2 Giving You The Chance to Use your 64 under the most widely used machine Operating system.		50.00
1541 Disk Drive + Easy Script + Future Finance + 6 Free Games		229.00
C2N Cassette Recorder		44.90
C2N Compatible Recorder		34.95
Cassette Interface		14.90
Deluxe Dust Cover		5.95
Tac II Joystick		18.95
Quickshot II Joystick		10.95
Wico Trackball		34.95
Light Pen		27.95
IEEE Interface		87.00
Rs232c Interface		27.90
Tripler 20/64 Interface		45.00
COMMODORE BUSINESS SOFTWARE		
Easy Script	D	74.95
Easy Spell	D	49.95
Future Finance	D	74.95
Easy Stock	D	74.95
BUSINESS GAMES		
High Flyer	D	11.99
Rail Boss	D	11.99
UTILITIES		
Intro to Basic part I	C/D/ +B	14.95
Intro to Basic part II	C/D/ +B	14.95
Gortec & Microchips	C	14.95
Assembler Tutor	C/D	29.95
Assembler Dev'lopment	D	24.95
Programmers Utilities	D	14.95
Petspeed 64	D	49.95
Simons Basic	R	44.95
COMMODORE GAMES SOFTWARE		
Lemans	R	9.99
Pinball Spectacular	R	9.99
Wizard Of Wor	R	15.00
Gorf	R	15.00
Lazarian	R	9.95
Tooth Invaders	R	9.95
Omega Race	R	9.95

Title	Format	Price
3rd PARTY BUSSINESS SOFTWARE		
Micro Simplex	D	172.50
Multiplan	D	79.95
Practicalc	D/C	39.95
Practifile	D/C	39.95
Inventory 64	D/C	29.95
Superbase 64	D	89.95
Wordcraft 40	R	89.95
Magpie	R	99.95
Templates For Magpie	D	29.95
DIALOG		
Database + Labels	D/C	34.00
DFM Database	D/C	24.00
HANDIC		
Diary 64	D	44.85
Calc Result	D+R	99.00
Easy Calc Result	D	49.95
Paper Clip	D	98.90
ADVENTURE INTERNATIONAL		
Diskey	D	36.00
The Hulk (Scott Adams)	C	9.95
ACCESS		
Neutral Zone	D	24.95
ATARISOFT		
Centipede	R	39.95
Defender	R	39.95
Donkey Kong	R	39.95
Pac-Man	R	39.95
Dig-Dug	R	39.95
Jungle Hunt	R	39.95
Pole Position	R	39.95
BRODERBUND		
David's Midnight Magic	D	24.95
Choplifter	R	26.95
Serpentine	R	28.95
Seafox	R	28.95
Spare Change	D	24.95
Drol	D	25.95
Lode Runner	D/R	24.95/29.95
DATAMOST		
Aztec	D	28.95
Swashbuckler	D	24.95
Roundabout	D	21.50
Bilestoad	D	21.50
Mating Zone	D	21.50
Paint Wizard	D	35.95
Wizz n'Roo	D	24.95
Monster Smash	D	24.95
Toopsee-Turvee	D	24.95
DATASOFT		
Moon Shuttle	C/D	18.95
ELECTRONIC ARTS		
One on One	D	29.95
Hard Hat Mack	D	29.95
Worms	D	29.95
Mule	D	29.95
Pinball Construction Set	D	29.95
Music Construction Set	D	29.95
Archon	D	29.95
Murder on the Zinderneuf	D	29.95
Axis Assasin	D	29.95
EPYX		
Crush Crumble Chomp	D	20.45
Curse of Ra	C	13.45
Jump Man	C/D	27.50
Jump Man Junior	R	28.95
Pitstop	R	33.15
Sword of Fargoal	C/D	20.50
Temple of Apshai	C/D	24.95
Upper Reaches of Apshai	C/D	13.50
Lunar Outpost	R	27.95
Gateway to Apshai	R	28.95
FIRST STAR		
Astro Chase	C/D	24.95
Bristles	C/D	24.95
Flip and Flop	C/D	24.95
FUNSOFT		
Snokie	C/D	24.95
HAYDEN		
Sargon Chess II	C	28.95
INFOCOM		
Deadline	D	34.95
Starcross	D	28.95
Zork I, II & III	D	14.95
Suspended	D	14.95
Witness	D	34.95
Planetfall	D	34.95
Enchanter	D	34.95
Infidel	D	34.95
MUSE		
Castle Wolfenstein	D	24.95
Rescue Squad	D	24.95
SCREENPLAY		
Pogo Joe	C/D	25.95
Kaiv	D	25.95
Wylde	D	25.95
SIERRA ON LINE		
Crossfire	D	21.95
Frogger	C/D	24.95
Threshold	R	27.95
Jawbreaker	D	27.95
Mr Cool	D/R	27.95
Sammy Lightfoot	R	27.95
Apple Cider Spider	R	27.95
SEGA CONSUMER PRODUCTS		
Star Trek	R	28.95
Buck Rogers	R	28.95
Congo Bongo	R	28.95
SIRIUS SOFTWARE		
Snake Byte	D	24.95
Bandits	D	29.95
Way Out	D	29.95
Blade of Blackpoole	D	22.50
Fast Eddie	D	24.95
Turmoil	D	24.95
Repton	D	29.95
Squish 'em	D	24.95
Gruds in Space	D	27.50
Wavy Navy	D	29.95
SSI		
Geopolitique	D	29.00
STRATEGIC SIMULATIONS		
Knights of the Desert	D	29.00
Combat Leader	D	29.00
Eagles	D	29.00
Ringsie Seat	D	29.00
SUBLOGIC		
FLIGHT SIMULATOR II	C/D	34.95
Night Mission Pinball	C/D	21.95
TRONIX		
S.A.M. speechsynthesis	D	39.95
Juice	D	27.95
Slalom	D	27.95
Kid Grid	D	27.95

64 EXECUTIVE OUTFIT

Add Disc Drive and Printer to your 64 at an unbelievable saving

1541 Disc Drive	£229.00
MPS 801 Printer	£229.00
Easy Script W/P	£ 75.00
Easy File	£ 50.00
Intro to Basic Pt 1.	£ 14.95



~~£597.95~~

OUR SUPER LOW PRICE ONLY £399.00

SAVE ALMOST £200 ON LIST

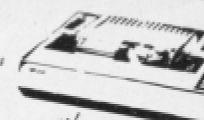
MPS 801 PRINTER ONLY £169

Our prices are the BEST. If you find that you could have bought an identical product, currently advertised and in stock at a lower price, we will CREDIT the difference.

EPSON FX80 For The Commodore 64

COMPLETE COMMODORE PRINTER OUTFIT

Our most popular HIGH PERFORMANCE matrix printer. Supplied together with everything you need to connect to your 64. You get the printer and the Computerama centronics interface kit. This revolutionary new interface is the most comprehensive utility of its kind, it works with all Epson and code compatible printers. We have yet to find a program that is not compatible. Enjoy Epson quality and speed tomorrow, ORDER TODAY.



ONLY £419

complete inc vat.

COMMODORE 1541 DISC DRIVE

SAVE £150



FREE - Easy Script word processor, Future Finance and six disc based games with every 1541 Disc Drive. But HURRY, this very popular offer must end soon.

ONLY £229 inc vat.

FREE software

We endeavour to despatch within 24 hours on stock items.

QUICKSHOT II Deluxe Joystick Controller

- **NOW WITH RAPID FIRE FEATURE**

The latest version of this most popular of all joysticks

- Robust, Accurate & Responsive
- BETTER MADE For longer life
- Long cord & TOUGH moulded plug
- Self-centring Joystick at an unbeatable price
- TWO Fire buttons – for maximum control & comfort
- PISTOL GRIP – comfortable over many exciting hours of game play

ONLY £10.95 inc VAT



REACHES THE SCORES OTHER JOYSTICKS CAN'T

WE CHALLENGE YOU to order an item we can't supply. Give us 7 days, if we can't despatch we will send you a FREE GIFT – And return your cheque.



FREE with every order, five pounds worth of moneysaving vouchers

ORDER BY MAIL
No Stamp Required
Post your order today to
COMPUTERAMA
DEPT. CU 10
FREEPOST
STAFFORD ST16 2BR

ORDER BY TELEPHONE
For ACCESS or VISA 24 hour ORDER HOT-LINE
Dial 0785 44222

CARRIAGE
50p postage on all orders under £25
Securicor delivery on high value items £8 eg printers, monitors, disc drives

Computerama 64

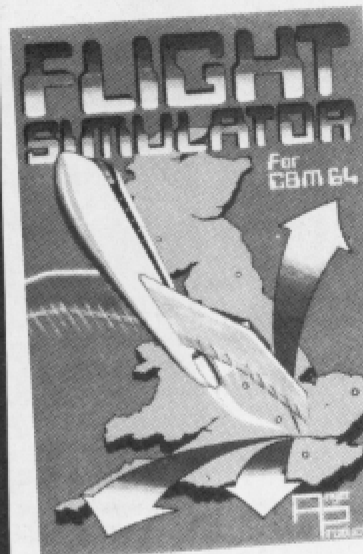
STAFFORD
59 Foregate Street

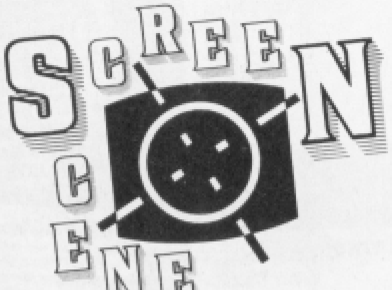
STOKE-ON-TRENT
11 Market Square Arcade.

SHREWSBURY
13 Castle Gates

Contents









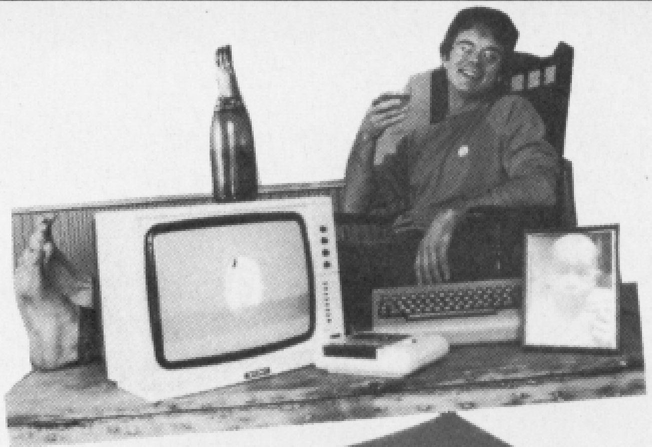
People

Acting Editor: Bohdan Buciak
Production: Mike Pattenden, Paul Hulme, Maggie Underwood
Contributors: Chris Durham, Karl Dallas, John Ransley, Fred Reid
Ad Manager: Julie Madigan
Advertising: Julia West
Magazine Secretary: Josephine Collins
Publisher: Rita Lewis

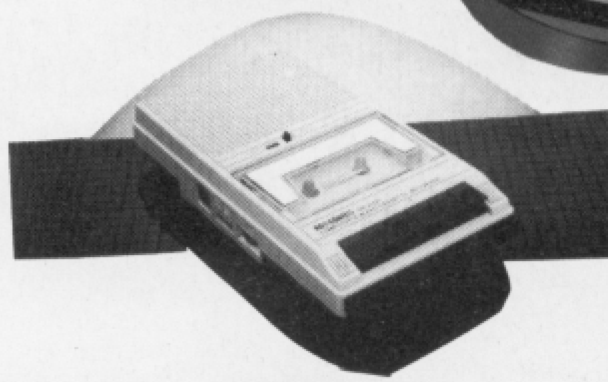
Registered Offices: Priory Court, 30-32 Farringdon Lane, London EC1R 3AU.
1984 An EMAP Publication.

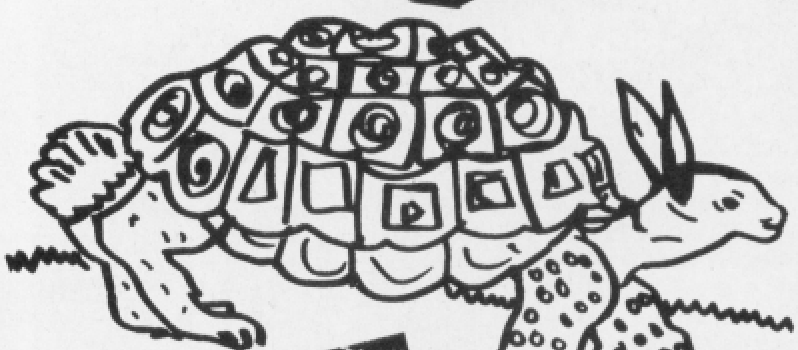
Editorial 01-251 6222
Advertising 01-251 6222
Production 01-251 6222

Subscriptions Back Issues
(See last page) 0732-351216











Interceptor Software
Heroes of Karn
commodore



The Oracle's Cave
DORCAS
COMMODORE 64

Commodore Corner

Readers will remember that Commodore made a big noise about the Commodore International Computer Art Challenge it organised in April. True to form, it's just announced the winners in equally grandiose style, exhibiting the winning entries at a prestigious art gallery in London's fashionable Mayfair.

The overall winning entry came from a certain Hugh Riley, a fine arts graduate from Manchester, who's work bears the cryptic title: "Louis (Meditation Failure 126)". The image itself is equally baffling to the intellect. It depicts a baby's face with a fly whizzing to and fro, perching intermittently on the infant's nose – Louis is, in fact, Hugh's baby son.

According to Hugh, his entry makes some statement about his current state of unemployment, a fact Commodore did not fail to mention, probably because it enhances the altruism factor of giving him not only £1,500 of Commodore equipment but also a £5,000 endowment to enable him to study computer art at the place of his choice. "I'll probably go to America," says Hugh, completely unruffled by eager media attention.

Other winning entries were not quite so problematic; one winner in the 'dynamic' category depicted the face of E.T. emanating from a black box. Another, called "Mr Freakenstein" showed the aforementioned tapping the keys of a Vic whilst grimacing hideously – probably a Syntax Error.

All entries were programmed without recourse to software aids, which was not Commodore's original intention. The Contest had been timed to coincide with the launch of the Tony Hart and Rolf Harris drawing packages for the 64, in the hope that entrants would use them to generate their images – neither of those packages are yet available.



Life of Riley – Art Challenge winner

More competitions

Commodore has also announced that it's to sponsor the first European heat of the International Programming Competition in collaboration with Thames Polytechnic; the aforementioned event being organised by the Association of Computing Machinery. It's actually being held at Thames Polytechnic on Saturday, 20th October. And according to Commodore's press blurb, the event is "part of its commitment to backing British education".

The idea of the contest is for teams of up to four undergraduate or postgraduate students to solve a set of six programming problems, using either Fortran or Pascal. Simply the team that finds the solution quickest will be declared the winners.

Commodore is providing its 8000 series computers on which the brainstorming sessions will take place. Apparently, the 8000 (or Pet) series is widely used in colleges and universities in Britain. And it looks as though Commodore is plugging that market heavily due to its lack of success in ousting the BBC micro from its lofty pedestal as 'the' micro for primary schools.

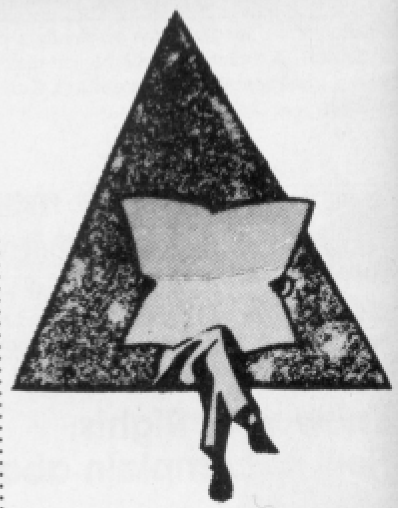
New games for old Vic

In the meantime, Commodore is vigorously quashing rumours that the ageing Vic-20 is a doomed bundle of chips; the official line being that Commodore will continue to produce Vics if the demand warrants it. At present, that seems to be happening. And to reinforce that commitment, Commodore continues to launch new Vic games when almost all the independent games companies have turned their Commodore-orietated attention to the more illustrious 64.

Just announced for the unexpanded Vic are *Rapier Punch* and *Starbase*: the former involves knights, dungeons, dragons and treasure, whilst the latter reworks the 'aliens attack futuristic planet' theme. More down to earth (well, not quite) is *Bomber Mission*, a new flight game that needs 16K expansion. Looks like there's something for all tastes, especially since prices are standard at just £4.95.

SHORTS

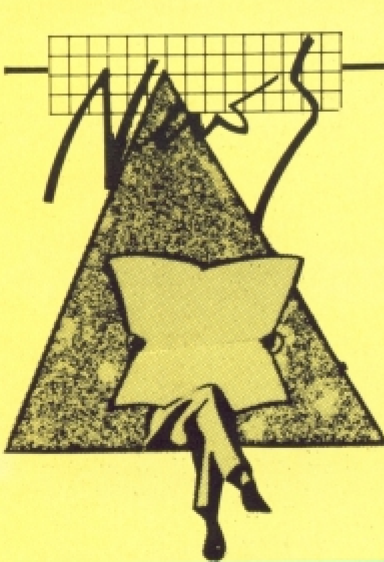
Wafadrive late: *It now looks as though a Commodore 64 version of the Rotronics* Wafadrive *disk storage system, mentioned last month, will not now be appearing in September as was originally intended. According to Rotronics director, Peter Booth, "we're now going to be a little late for the Christmas market". A denuded version was produced, however, just to prove that no legs are being pulled. Rotronics plans to include a free wordprocessing package, written by Hewson Consultants, when the device actually appears. A small selection of games should also be available on wafer. Notable interested parties include* Artic, Softek, Romik *and* Melbourne House.



SHORTS

Ground control: *Flight simulators for the Commodore 64 seem to be all the rage at the present. But software house Supersoft reckons it's smarter than the rest by producing something more extraterrestrial: a space flight simulator called* Interdictor Pilot. *The package includes a 48-page manual which, according to the blurb, "provides an insight into the latest technological developments including travel at the speed of light". When you've got bored with reading, you can "take part in simulated dogfights with alien craft". The cassette version costs £17.95, and £19.95 for disk – space travel was never cheap.*


Trollie Wallie
INTERCEPTOR
SOFTWARE
ONLY
£7.00
ON CASSETTE
£9.00
ON DISK
SUITABLE FOR THE
commodore 64
INTERCEPTOR
MICRO'S
LINDON HOUSE, THE GREEN, TADLEY, HAMPSHIRE
TELEPHONE: (07356) 71145, 3711
AVAILABLE NOW
FROM
ALL GOOD COMPUTER
RETAILERS



SHORTS

Zapping with Danger Mouse: *Fans of that intrepid cartoon rodent, Danger Mouse, will be pleased to hear that Creative Sparks is launching a Commodore 64 game called* Danger Mouse in Double Trouble. *That will be followed by* Danger Mouse in the Black Forest Chateau *– should that have been 'gateau'? Both games will be available on cassette only, costing £7.95 each. But there is a bonus of sorts: buyers of the* Double Trouble *game get to enter a competition. What do you win? How about a trip by Roller and helicopter to the Cosgrove Hall where the Danger Mouse series is filmed?*

Elite hologram

Credit card holders will have noted the tiny holograms now being printed on their favourite piece of plastic. They may be fun to twiddle around but their real purpose is to put the dampers on would-be counterfeiters. Now, that idea is being taken up by the games software industry in its seemingly endless quest to zap the pirates.

Elite Systems, a newly formed software house, is planning to include a hologram sticker on insert cards for all its games. No games have actually appeared yet, but an Elite spokesman reckons three titles will appear in Autumn for the Commodore 64. One is curiously called *Kokotoni Wilf*; the other two are based on American TV series – there's no escaping them.

The holographic process is expensive, but Elite says its games prices will remain competitive at around £6.95. If you lose interest in the game, you can play around with a three-dimensional Elite logo. Whether the process succeeds or not, it will certainly make the games more attractive to prospective buyers – cunning, eh?

Gremlins and Presidents

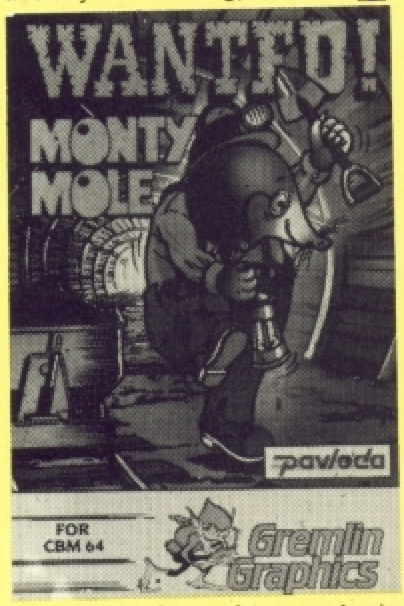
The games software industry must have an unquenchable desire to provide us all with new and original games to play. The latest avenue it's exploring is politics and current affairs.

A new software house, Sheffield-based Gremlin Graphics, has been making a name for itself (notably on television programmes) by releasing a Commodore 64 game called *Wanted: Monty Mole*, which capitalises on the (still ongoing) miners' strike.

Monty, the furry little protagonist, is on a coal-snatching mission in the South Yorkshire coalfield, doing battle with flying pickets and eventually confronting "a fiery figure seated on a graphite throne" – the aforementioned is called Arthur. Monty must topple Arthur from his lofty position by seizing secret ballot papers ... and so it goes on.

Whether that's bad taste or not depends on which side of the picket lines you're standing. But Gremlin is trying to calm any irate complaints by donating 5p for every game it sells to the Miners Welfare Fund, as well as a £250 lump-sum donation to that same cause.

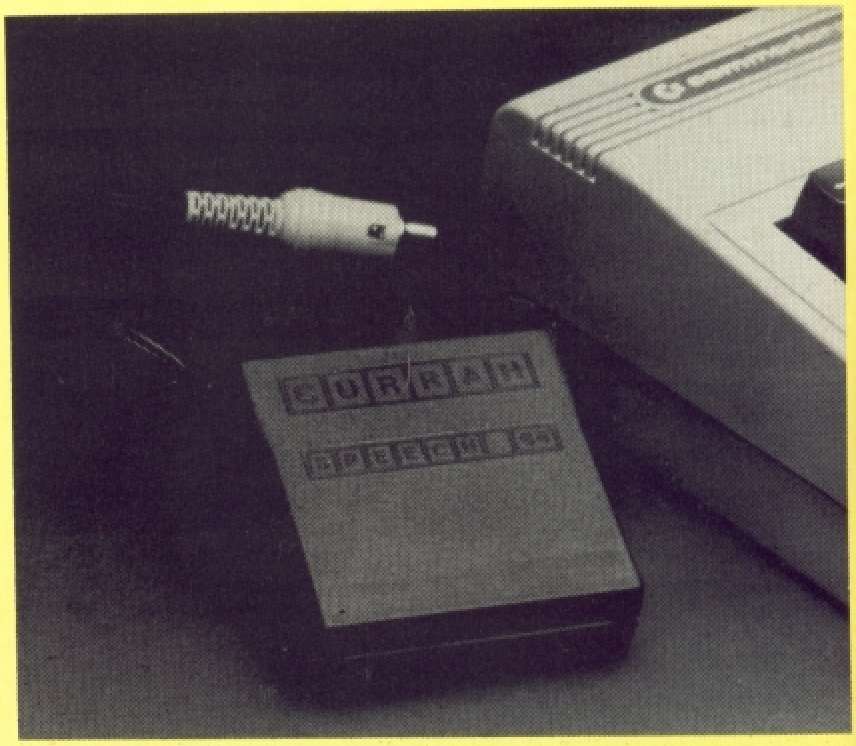
Meanwhile, a new range of Braingames is being launched by Brighton-based Amplicon. As the name suggests, the games are de-



signed to demand some brain work, as according to Amplicon's Peter Wood, "the majority of games on the market don't present players with sufficient challenge to keep them coming back to replay"

Amplicon reckons it takes brain power to become President of the USA, so it's produced Election Trail for the Commodore 64.

In 'one player' mode, you campaign for the Republican party against the Democrats, represented by the computer. The aim is to win as many States as you can by using various methods to gain support. Those include holding rallies, public debates, media campaigns and getting endorsements from movie stars. You also hold regular opinion polls to see how your party is getting on – pretty realistic, eh? Presidential enquiries on 0273 608331.



Speaking up for the 64

The long-awaited Speech 64 speech synthesiser cartridge from Currah Computor Components is now available. Wary of being thought too modest, Currah describes it as "the most user-friendly and versatile speech unit available for any computer, anywhere". After that lot, the £29.95 price-tag seems quite reasonable.

Speech 64 works by using a set of allophones – the sounds that go together to make up a particular word. That means the package has an unlimited vocabulary because it builds words from its stock of component sounds. Sound is actually generated through the speaker on your TV or monitor (a DIN plug from the cartridge slots into the 64's video port).

Using the Basic command SAY, the device will voice any text or numbers inside inverted commas, following its programmed set of pronunciation rules. But it does occasionally come unstuck – 'comb', for example, is pronounced with a 'b'. But you can type the word using conventional allophone notation to get the sound right.

Apart from the SAY command, there's KON: any key you hit is voiced (even the cursor and function keys); and KOFF, which turns the facility off. You have a choice of two voice pitches (gained by placing either a 0 or 1 after the SAY command), and various levels of intonation. For the more advanced, the (rather small) manual gives examples of incorporating speech into Basic and machine code programs, using the cartridge's 256 allophone buffer.

And Speech 64 looks like making an impact on the games market. Since it uses none of the 64's operating system, its facilities can be incorporated easily into games. Already, Anirog's new *P C Fuzz* game uses it. Or maybe you just want that rather tinny Dalek voice to wake you up in the morning? We'll be reviewing it soon. More details on 0429 72996.

SHORTS

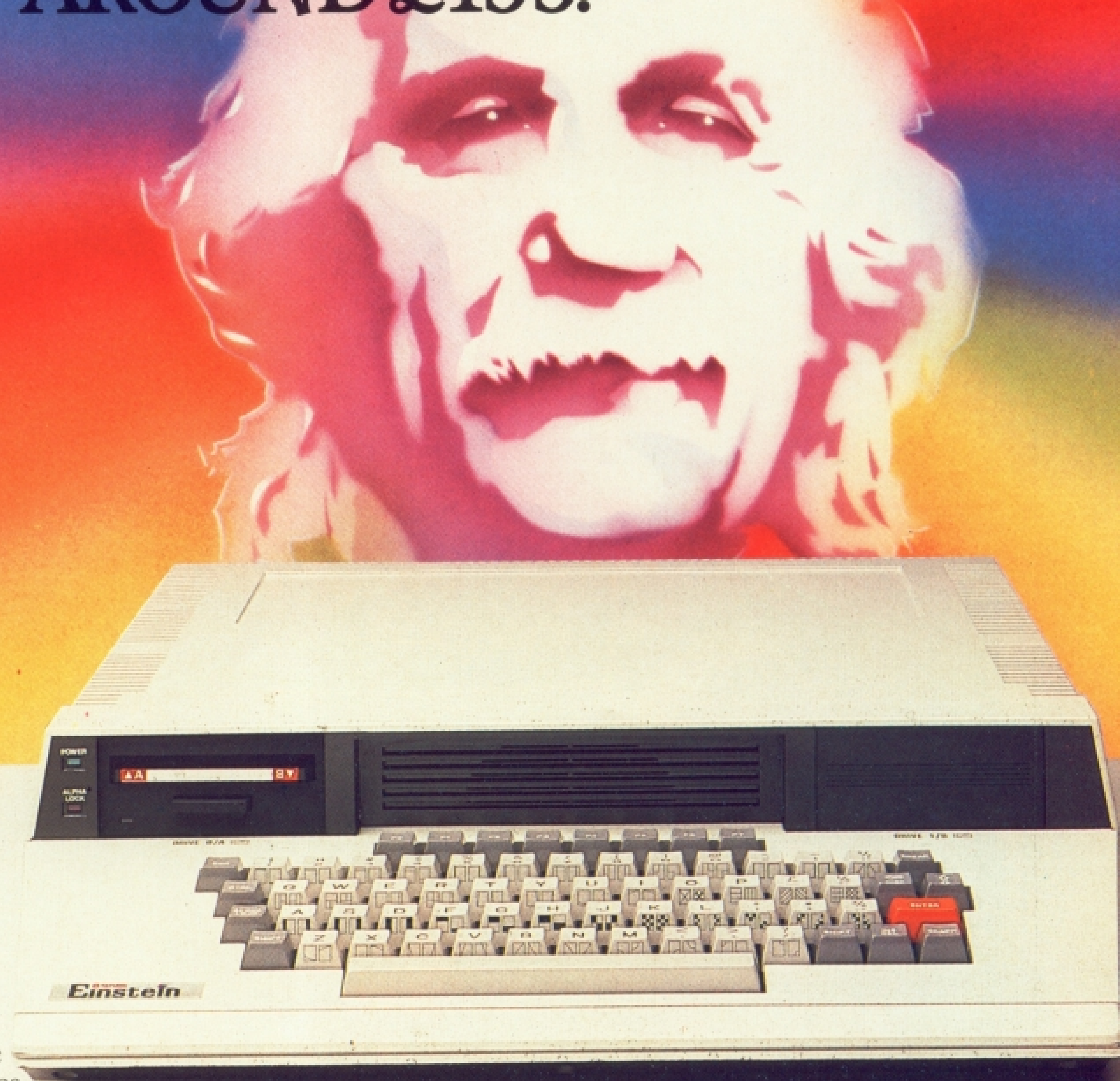
Funny titles Dept: *Richard Shepherd Software is all set to launch a new adventure game for the Commodore 64, with the imaginative title,* Upper Gumtree. *Without giving too much away, the game features a certain Professor Blowitovitz who holds the fate of the world in his hands. Good simple fun? Late September is forecast as the launch date and the game will cost £9.95 on tape and £12.95 on disk.*

SHORTS

Amending Aardt: *Albert van Aardt has written to point out that the listing he sent us for his* Albert's Assessment Aid *program (Commodore User, July 1984) contained some inaccurate lines. To make the program run as it should, substitute lines 172 and 173 with the following:*

```
171 FOR I = 1 TO 5000
172 K = (K+(K*R)) - P: IF
    K<P THEN M = I: I =
    5000
173 NEXT
```

A COMPLETE COLOUR MICRO WITH NO HIDDEN EXTRAS FOR AROUND £499.



The title of 'genius' is not bestowed lightly on man or machine: those extra-ordinary qualities and powers of intellect are rare.

Einstein had them in full measure. And so now does the new micro computer from Tatung, designed and built in Britain and appropriately named – Einstein.

Einstein was created by Tatung, one of the world's leading electronic companies, and given the capacity and the remarkable capabilities to compete with computers costing far more.

Its simplicity of operation will appeal to the first time buyer and to businessmen who don't want to lose staff to expensive and time-consuming training courses. At the same time its operating system is both powerful and sophisticated to satisfy the most advanced requirements.

For those who have outgrown their existing primitive machine, the speed and capacity of the 500K built-in disc drive will make all the difference. And for the small businessman, the ability to store and retrieve all information in seconds will be as important as Einstein's built-in flexibility, which allows the system to grow as the business develops.

BUILT-IN 80K MEMORY
Total memory capacity 80K RAM divided into 64K 'user' memory and 16K for colour graphics production.



BUILT-IN DISC DRIVE
500K 3" compact floppy disc drive. Potential for massive extra storage with a second 500K disc drive internally.

BUILT-IN 16 COLOUR GRAPHICS High resolution graphic animation from 32 sprites (definable shapes), 16 vivid colours.

BUILT-IN EXPANSION PORTS
Connection to both TV and optional colour monitor, most printers and other computers via RS232C interface. Also twin joystick ports, 8 bit user port, exclusive Tatung Pipe.

BUILT-IN FLEXIBILITY
Powerful Crystal BASIC. Multi-lingual plus ability to run CP/M.†

BUILT-IN VERSATILE SOUND
Sound synthesiser facility includes chromatic music with three voices. Substantial speaker with volume control. Provision for speech synthesiser.

Einstein has them all. Feature for feature, it meets the needs of the novice and the experienced operator, both at home and in the office.

Einstein, designed and built in Britain, is a complete colour micro computer with no hidden extras.

And for under £500 is sheer genius.

TATUNG
Einstein

SHEER GENIUS: AT WORK, AT HOME.

DIAL 100 AND ASK FOR FREEFONE EINSTEIN FOR YOUR NEAREST STOCKIST.

†CP/M is a trade mark of Digital Research Inc.

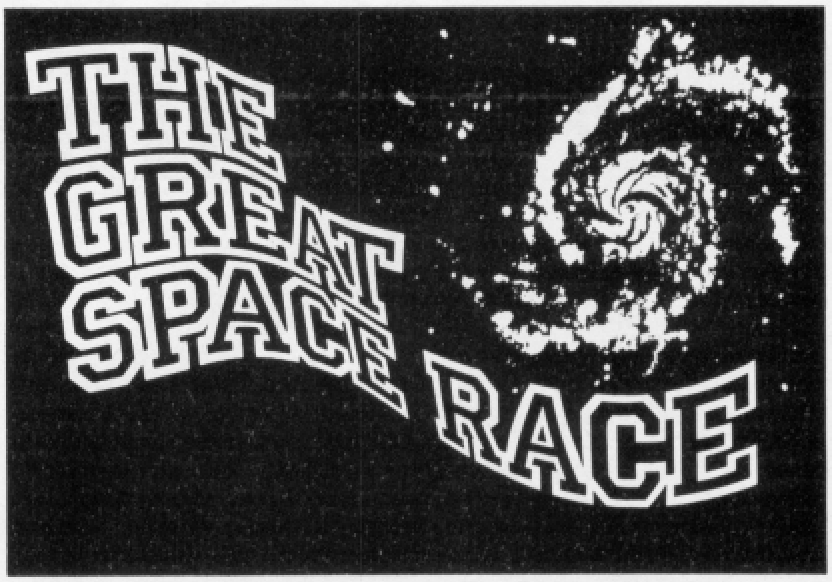

BEYOND
CHALLENGING SOFTWARE
ANKH
will take your mind . . .
PAST THE TWIN ROOMS OF MANY PORTALS . . .
THROUGH THE CORRIDORS OF SHADOW PROBES . . .
TO THE DEPTHS OF DESPAIR AND THE PEAKS OF ACHIEVEMENT
LAUNCH YOUR MINDPROBE INTO ITS MESMERISING ROOMS
AND UNRAVEL THE MYSTERIES WHICH LEAD EVER DEEPER,
EVER CLOSER TO UNCOVERING THE
RULES BY WHICH THE METAREAL WORLD
OF ANKH IS GOVERNED. TREASURE,
TOOLS AND TORTURE AWAIT WITHIN!
ANKH is the first game of its kind – it won't be the last!
ROOMS
OBJECTS
The ONLY 3D Chess Game!
My Chess II is the best chess game available for the Commodore 64. Our disk version even gives you two 3D views, from behind your pieces and to one side – just like the real thing. It wins hands down on features with nine levels including a 60 moves in five minutes response time on level 1. It comes with a comprehensive manual. My Chess II beats other Commodore 64 programs on performance. And it beats them on price as well. • Game replay • Automatic play • Sound on or off • Print option • Solvemate • Find moves
II mychess
If you only want to buy one chess program, make it MY CHESS II!
PLEASE SEND ME . . .
ANKH £8.95 (cassette) £11.95 (Disk) Commodore 64
MY CHESS II £8.95 (cassette) £11.95 (Disk) ••
AZTEC £8.95 (cassette) £11.95 (Disk) ••
Mr. Robot £8.95 (cassette) £11.95 (Disk) ••
QTY
TOTAL
all prices include P&P
Beyond order line 0858 34567
Please rush me details of the "Beyond" club!
I enclose a Postal Order/Cheque to Beyond, or charge my Credit Card
CARD No.
Access/Visa (Delete as necessary)
NAME
ADDRESS
Post Code
Signature
BEYOND, Competition House, Farndon, Market Harborough, Leicestershire LE19 9NR

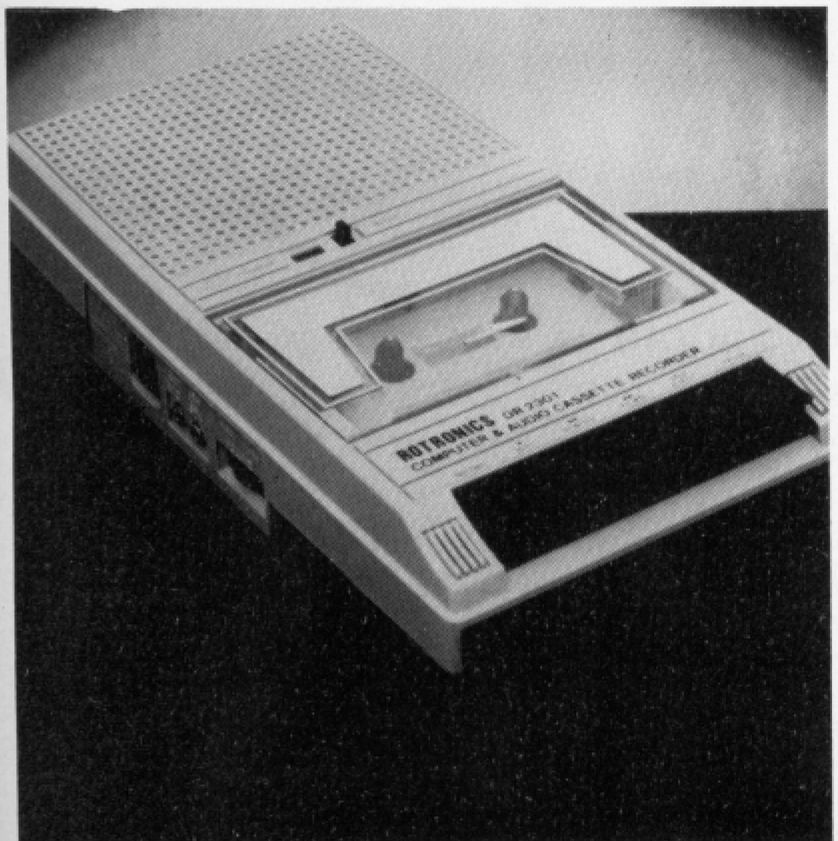
Extending the Legend

Legend's *Valhalla* soared up the Commodore games charts when it finally appeared on the 64 a few months ago; 'finally', because it had achieved cult status long ago on the Spectrum. Whether that was a mistake or a clever marketing ploy, Legend has changed tack: it's releasing *The Great Space Race*, its latest offering simultaneously for Spectrum and 64.

The game is due to appear in early October (no prices yet) probably heralded by a massive spending spree on publicity. The game itself is rumoured to have cost £250,000 to develop. With that kind of money involved, you don't keep a low profile.

According to Legend director, John Peel, the new game uses a new operating system called Movisoft 2 which "features technical effects never seen before in home computer software". And the graphics? "We have finally achieved true solid 3-D graphics, which, under the control of a computerised 'camera director' create the most realistic and spectacular pictures ever." Modesty apart, the game looks set to bring in more money bags for Legend. We're queuing up for our review copy.





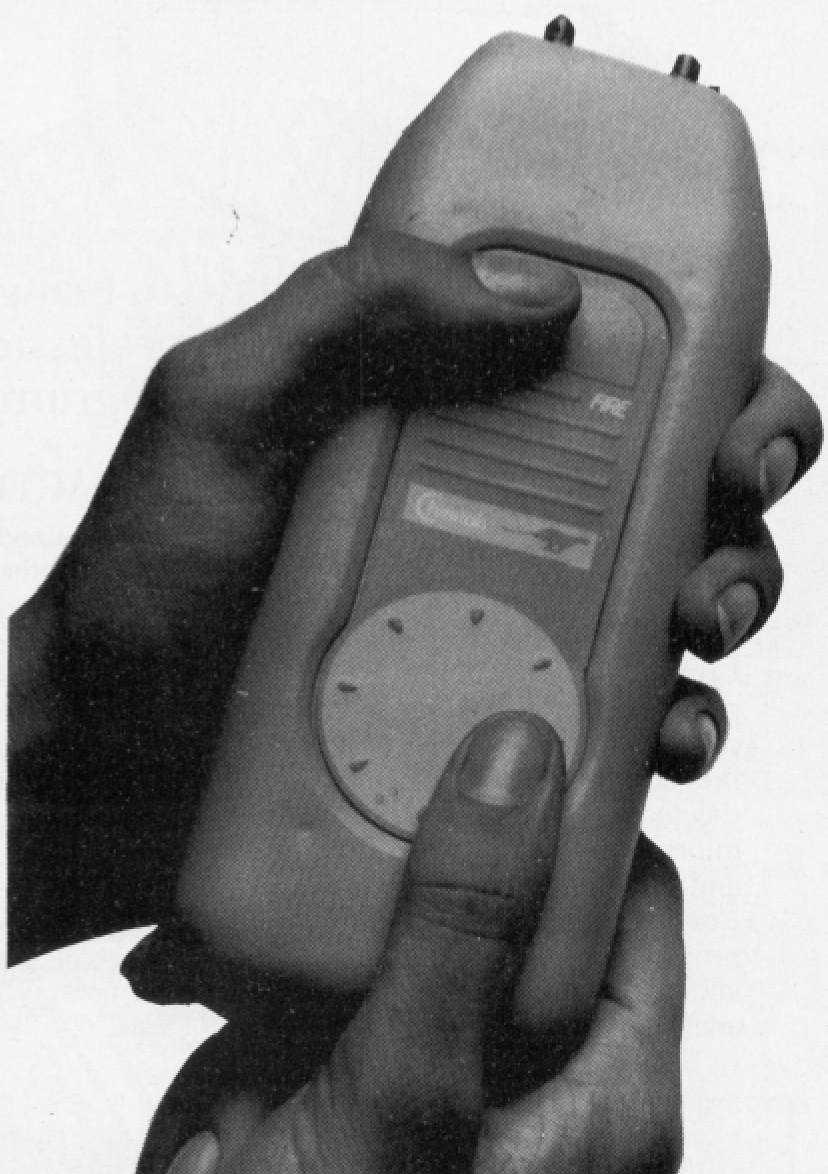
Cassette player convertible

Commodore users have grounds for being dissatisfied with their lot when it comes to using Commodore's own Datasette for loading and storing programs. Priced at around £40, the device is somewhat expensive, there are no real alternatives to it, and having paid your money, you can do nothing else with it. Enter the DR 2301 data recorder for the Vic and 64 from Rotronics, which doubles as an ordinary cassette recorder, and costs just £34.95.

Rotronics supplies a cord which you plug into the DIN socket on the side of the device, and other end into the cassette port on your Vic or 64. The unit then takes its power from the computer and works just like the Datasette. Two differences, though: there's no recording light, and if you turn the volume up, you can hear the data loading signals – those amount to a load of nasty screeching sounds.

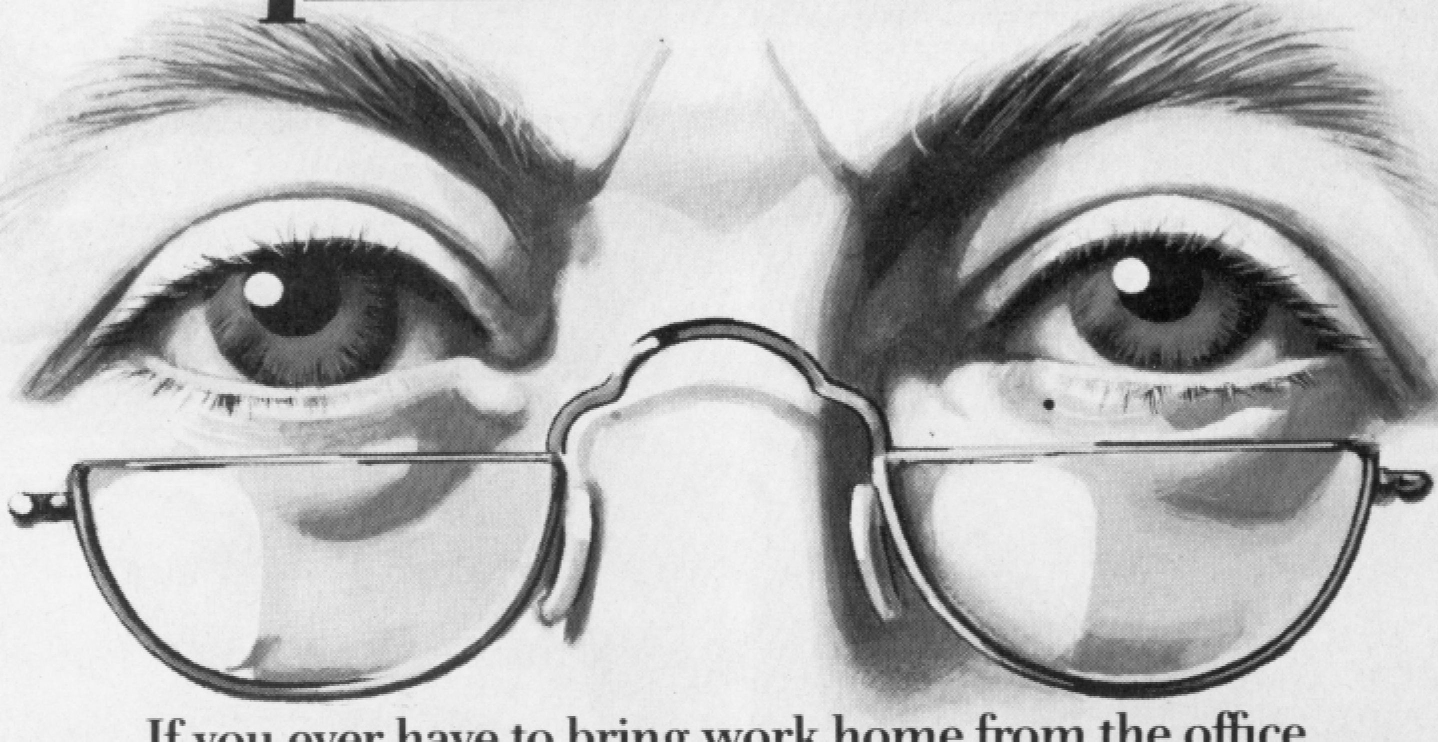
Our review model happily loaded even the largest 64 games programs and had no trouble with the new fast-loading systems now being introduced on games.

As a tape player and recorder, the DR2301 performs adequately. Nothing brilliant in the way of sound (there's volume but no tone control), but what can you expect for the money? By the way, you can't play audio tapes when the device is plugged into your computer. That's a pity; music while you program might have been an attractive proposition.



No, this is not Captain Kirk's 'phaser'. It's the new RAT infra-red joystick from Cheetah Marketing, for the Commodore 64. But before you consign your manual cable-connected model to the dustbin, here's the price – £29.95. RAT uses touch-sensitive pads for controlling movement and firing. It's infra red receiver plugs into one of the joystick ports on the 64, and you can zap away quite happily from across the room – providing you can still see the screen. Two problems, though: you can't attach two RATS to the 64, neither can you use the RAT with a conventional joystick plugged into the second port.

Consider our software from a professional point of view.



If you ever have to bring work home from the office you can now tackle it professionally thanks to Practicorp's range of advanced programs for the Commodore 64.

PRACTICALC 64.

Working on budgets, sales forecasts or cash flow at home has never been easier. With the Practicalc 64 spreadsheet and your Commodore 64 you have a totally professional system. It has 2000 cells, more than 20 mathematical functions, the ability to insert or delete rows and columns, sort information alpha-numerically and seek specific information. And you won't need a cash flow projection to see if you can afford it at only £44.50 (disc) or £39.95 (tape).

PRACTIFILE 64.

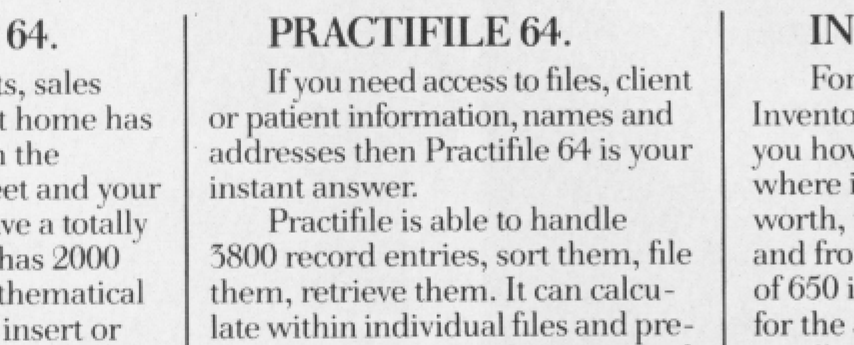
If you need access to files, client or patient information, names and addresses then Practifile 64 is your instant answer.

Practifile is able to handle 3800 record entries, sort them, file them, retrieve them. It can calculate within individual files and prepare your own style of reports. And what's more its easy menu-driven program makes it child's play to operate. Only £44.50 for the disc version.

INVENTORY 64.

For keeping track of stock, Inventory 64 is just the job. It'll tell you how much stock you have, where it is located, how much it's worth, what you should re-order, and from whom. With a capacity of 650 items, Inventory 64 is ideal for the average small business, and excellent value at only £29.95(disc).

Practicorp's software is available at all good computer stores, including selected branches of Boots, W.H. Smith and Menzies. Clip the coupon for details of your nearest stockist.



Please send me details of your Commodore 64 programs.

Name: ____________________

Address: ____________________

____

____

PRACTICORP

No Nonsense Software

Goddard Road, Whitehouse Industrial Estate, Ipswich IP1 5NP.
Telephone: 0473 462721

The Forth Dimension:

Programming with a DIY Language

Part two – Peek-a-byte

by Richard G Hunt

The Forth dictionary consists of up to 200 or so words. So far I have mentioned only a few of the arithmetical words: and to cover every word is outside the planned scope of these articles, the object of which is more to initiate conversations between the reader and the Forth system in your computer. In so doing I hope you'll see that Forth can be regarded as a computer environment where DIY reigns supreme.



The 6502 processor family has the curious habit of presenting any two-byte address (please take care not to confuse a machine-code 'word' of two bytes – which in Forth is a 'cell' – with the Forth word) in low byte/high byte order. This is why in Basic one must PEEK(43) + 256* PEEK(44) on a Vic to find out the decimal start of Basic RAM.

The actual sum might look like 1 + 256 * 18 = 4609. In Forth the operation would be: > 1 18 256 * + (RETURN) 4609 OK.

Supposing we wanted a Forth word to perform the correct operation on any pair of addresses. Obviously other addresses must be used – Forth certainly does not use the Basic memory pointers! The word (c@) is known as 'cee-fetch'; it copies on to the stack the contents of the byte addressed thus – > 641 c@ 642 c@ <.

Now the operation > 256 * + . < can be performed. To create a new word the colon definition should be used. Let's define the word (LOWHI) –

: LOWHI swap c@ rot c@ swap drop 256 * + . drop ;

Now what's all this 'swap drop' business? (swap) merely exchanges the places on the stack of the top two items. (rot) rotates the third stack item to the top of the stack (TOS); and (drop) drops the TOS right off the stack. They are needed here because we are asking (LOWHI) to operate on two addresses we supply, for example > 641 642 LOWHI <. In order that the correct multiplication and addition take place the operands must be correctly positioned.

In our example the stack now looks like this:

1) 641 642	
2) 642 641	**swap**
3) 642 641 0	**c@**
4) 641 0 642	**rot**
5) 641 0 642 18	**c@**
6) 641 0 18 642	**swap**
7) 641 0 18 256	**drop 256**
8) 641 0 4608	*****
9) 641 4608	**+**
10) 641	**.**
11)	**drop**

The effect of words on the stack are shown by stack diagrams. That for (LOWHI) would be (addr 1 addr 2 —) where two supplied addresses cause the word to function.

A problem ensues if the result of the word is greater than 32767. This is the largest signed number Forth can handle. In this case we are not interested in the sign of the number; so we can substitute (U.) for (.). Now output is requested as an unsigned number, any number between 0 and 65535.

Actually I don't think (LOWHI) is particularly useful except as a demonstration. You may >FORGET LOWHI< at choice.

Now for an objective that extends the idea of looking at memory. Let's define a word that ideally gives a hex memory dump on the screen with ASCII equivalents. First define a word (PEEK):

: PEEK c@ u. ;

This is recognisabl;y a derivative of (LOWHI) but uses only one address as a parameter.

Next we diverge while I introduce the first Forth structure word (DO ... LOOP). This enables repetitive processing for a definitive number of times. (DO) requires two parameters, a limit and an index. The limit represents the highest increment of the loop. The index is the start. Words between (DO) and (LOOP) are thus executed (limit – index) times. For example, the word ...

: TEST 10 0 do 2 3 + loop ;

... will output:

5 5 5 5 5 5 5 5 5 5 OK

The index that increments with each loop can be used to increment the address you wish to (PEEK). The index word (I) is used in a loop like this:

: TEST2 10 0 do i . loop ;

... which outputs:

0 1 2 3 4 5 6 7 8 9 OK

Now we can build a loop into our new word:

: DUMP 1+ swap do i peek cr loop ; (addr1 addr2 —b)

This takes two memory addresses; adds 1 to the second, swaps their order and uses them as parameters for a loop that PEEKs the value of the byte accessed by the loop index. Try it.

Forth

Now >FORGET PEEK< and redefine it so –

PEEK swap do i @ u. cr loop ;

This has another effect. (@) fetches a 16-bit value – two bytes as a time, as opposed to (c@) which fetches only one. What need was there ever for (LOWHI)?! Can you think of a way to display the address against its contents? Answer at the end of this article ...

You can in fact play around with versions of (PEEK) and (DUMP) which allow you to display whatever you will. It's a good way to find out what is happening in the Forth system that's different from the Basic you already know.

Some implementations may already support (DUMP) in the form I stated earlier as my objective. Here, with comments (which may be omitted when you enter it), is my own DIY version based on that objective: it uses some words I have not explained yet. Note the re-definition (purpose-built) of (PEEK) and how it and (ASCII) are built into the higher level of definition. The whole code should be entered on an editing screen and (LOAD)ed.

```
: PEEK  do i c@ 3.r loop ; ( read, format & display byte from loop)

: ASCII do i c@ emit loop  ; (read & display ascii character)

: DUMP  hex ( set base 16)

        1+ swap cr ( set outer loop parameters in order)

        do ( begin loop)

           i dup dup ( make  3 copies of index)

           4 + rot rot ( add loop increment and order them)

           1 u* 4 d.r (  create  unsigned double number and format)

           over over ( copy inner loop parameters)

           peek space

           ascii  cr

        4 +loop ( increment and end loop)

        decimal (reset base 10)

        ;s
```

((.r) & (d.r) are formatted number output words. (dup) copies the TOS while (over) copies the second on the stack to TOS. (space) outputs an ASCII blank, and (+loop) increments the loop by a specific quantity, like BASIC STEP. The loop increment may be changed to 8 for a C-64.)

Next time – all about the stack.

Answer to the problem set above *: **PEEK** 1+ swap do i i u. c@ u. cr loop ;*

This is your pilot speaking...

Flight Simulators for the 64

by Jim Grubbs

There is a picture that hangs in my house of a young lad about 10 years old or so. The setting appears to be a clear summer night: the boy's sights are focused on the sky as a large aircraft passes overhead. My grandmother says that it reminds her very much of my father at that age – Dad went to join the air force.

The family interest in what we now call aerospace continues with me. And with a Commodore 64 computer, you can do the next best thing to actually piloting an aircraft – complete with good sound, vision and colour effects.

Several flight simulator packages are available. Here's the results of many hours of test flying some of the best. Chris Durham has added a piece on Anirog's 737 simulator.

Solo Flight by Microprose

***Solo Flight* was written by Sid Meier for the Atari and adapted to the 64 by Grant Irani for Microprose Software.**

One of the attractions of this package is the ability to choose from several different locales to fly in – the flat country of Kansas, the mountains of Colorado, and the unique combination of ocean on one side and mountains on the other of coastal Washington State offer something for everyone.



Once you become an ace you can try the mail run game that is included and put your skills to a real trial. And you can also exercise some control over the degree of difficulty by varying the weather conditions and such.

The bottom portion of the screen displays an instrument cluster not unlike those found in the cockpit of a small aircraft. The upper part of the screen is a three-dimensional view, though the view projected is somewhat different than a true 'view out of the window': it's more as if you were being followed by a television crew in a plane behind you. That's the perspective you have.

This detracts slightly from the realism of the program. But the view is fairly detailed. When you are close to the ground, you can even see your shadow. The scenery remains in perspective as you bank and turn.

A 16-page instruction booklet is included that adequately describes the basic techniques of flying and includes maps of the airports.

In addition to flying visually, *Solo Flight* is equipped with avionics for IFR (instrument flight rules) operation. When flying IFR, the top of the screen turns totally grey so you must navigate by instruments alone.

The instrument landing system (ILS) included is not quite as realistic as some tested, but does give you a feel for instrument-assisted flying.

After an IFR flight, a map is projected on the screen showing the actual course you flew. That can be quite interesting, particularly when you first try it!

One of the features I found most welcome is the ability to practice landings continually. That's the most difficult part of flying and *Solo Flight* allows you to get on top of it.

The response of *Solo Flight* to changes in joystick direction is excellent. Controls operate smoothly. It is a delight to fly this one.

At $34.95 US, £14.95 (on both cassette and disk) in Britain,

***Solo Flight* is definitely good value – sure to bring you many hours of enjoyment.**

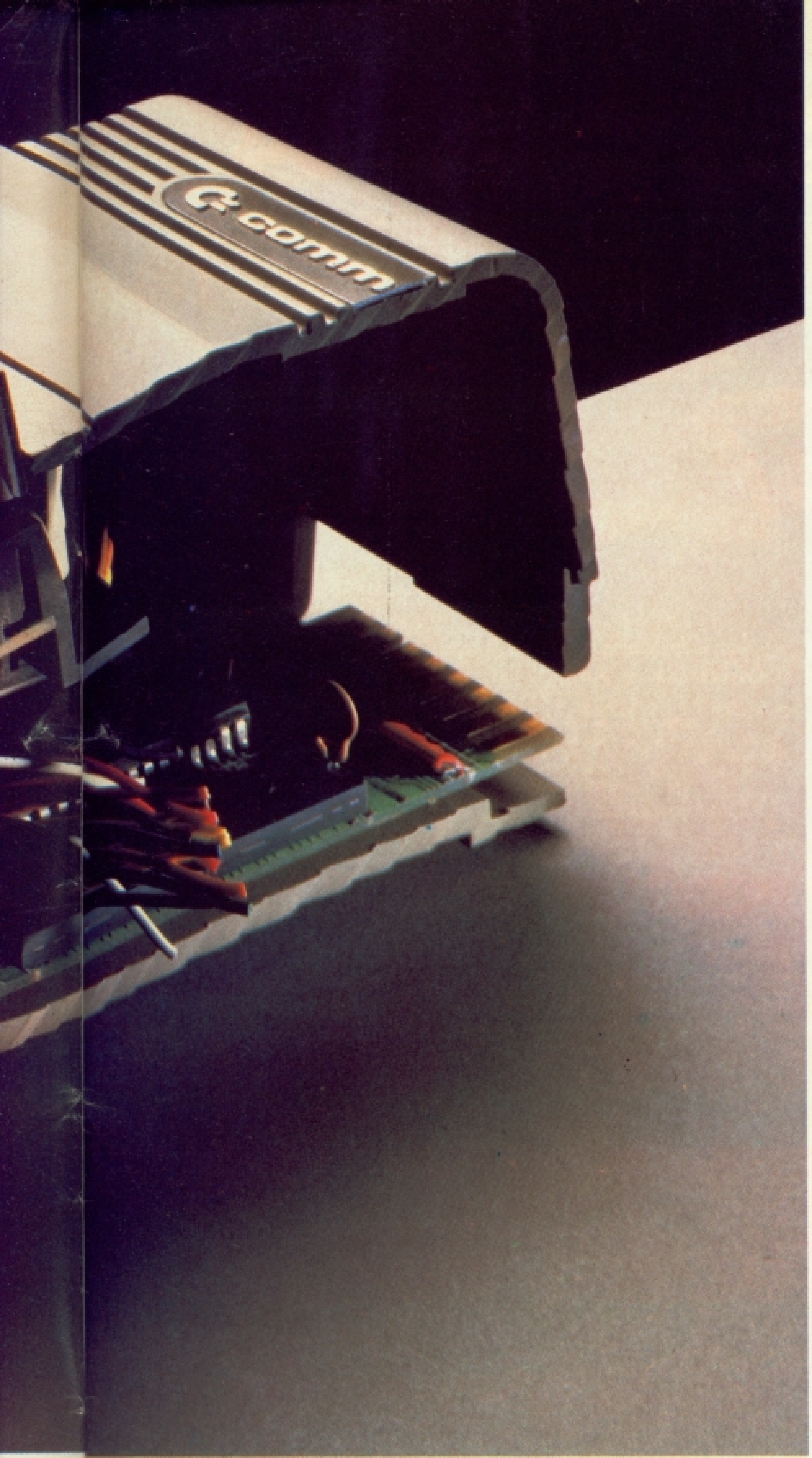
IFR by Academy Software

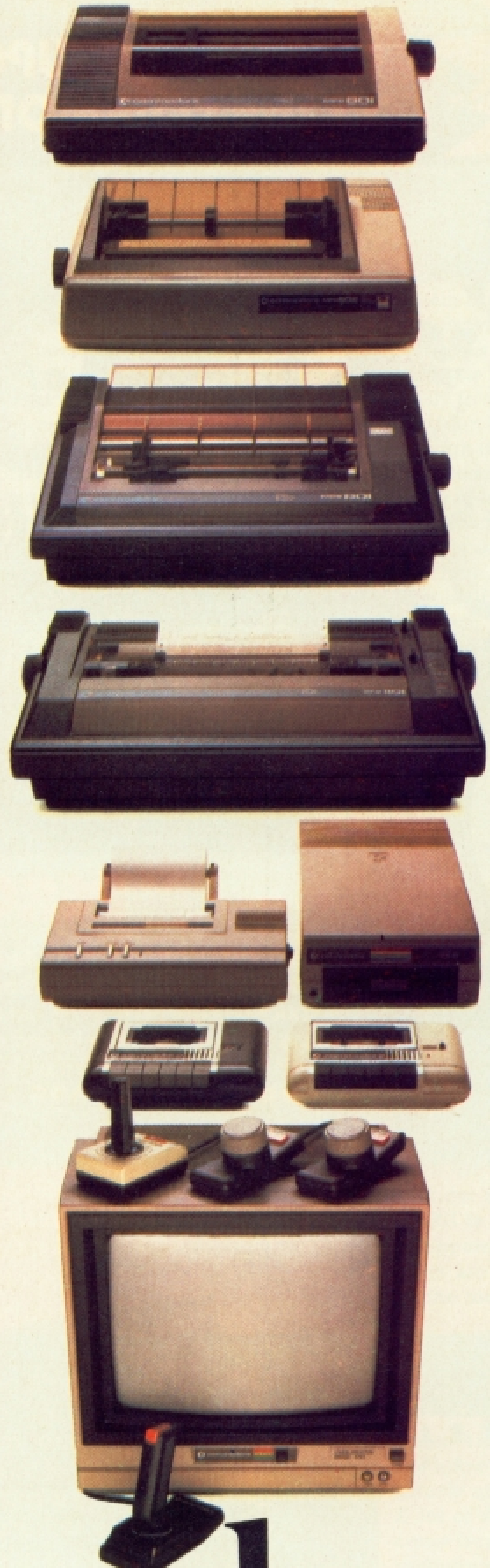
Academy Software invites you to put on the 'hood' and fly its *IFR* simulator. Written by Ron Wanttaja, a private pilot and employee of Boeing Aerospace, *IFR* is an excellent package if you are interested in instrument flying only.

Since you have *no* view out of the window at all, the instrument panel of *IFR* takes up the whole screen.

You begin by selecting the degree of difficulty and the amount of turbulence. An editor is also available for changing other flight conditions; a 20-page instruction manual comes with the package.

Two ILS airports are included and two non-instrument approach runways are also available.





COMMODORE MPS801
Dot matrix printer. £230.00. Tractor feed. Print speed: 50 characters per second.

COMMODORE MPS802
Dot matrix printer. £345.00. Friction feed for standard paper. Print speed: 60 characters per second.

COMMODORE MCS801
Dot matrix colour printer. £399.99. 7 colours including black. Print speed: 38 characters per second.

COMMODORE DPS1101
Daisy wheel printer. £399.99. Letter quality print on standard paper. Print speed: 18 characters per second.

COMMODORE 1520
Printer plotter. £169.99. For charts and graphs. Print speed: 14 characters per second.

COMMODORE 1541
Disk drive. £229.00. 170K memory. 5¼" diskette.

COMMODORE 1531
Cassette unit. For Commodore 16 and Commodore plus/4.

COMMODORE 1530
For Commodore 64. £44.95 each.

COMMODORE 1701
Colour monitor. £230.00.

JOYSTICKS
(prices from £7.50)

PADDLES (£13.50).

Details correct at time of going to press.

g 1/10th of your brain?

And for hard copy, there are our four printers and a printer plotter. These will preserve on paper–in colour, black and white, chart form, graphs or text, the fruits of all your labour.

Finally, for more exciting games, there are joysticks and paddles.

So use your brain. And make sure you use all of your computer's brain.

ry.

ns.

cs

or.

FOR FURTHER INFORMATION, TICK ONE (OR MORE) OF THE BOXES ABOVE AND SEND TO THE COMMODORE INFORMATION CENTRE, 1 HUNTERS ROAD, WELDON, CORBY, NORTHAMPTON NN17 1QX. TEL: CORBY (0536) 205252.

NAME

ADDRESS

PECUS1084

commodore

Since this is *strictly* an IFR simulator, you may be asking, how do you land IFR at a non-ILS airport? The maps in the instruction manual provide you with the exact location of the airstrips, giving the latitude and longitude for the top and bottom and each end of the runway. Landing in this fashion is quite a challenge since you have no visual clues at all as to what is going on!

You must be sure and use the map in the instructions, or you may find yourself flying along just fine ... only to find out that you are too low and come crashing into a cliff.

One of the most impressive features of *IFR* is difficult to describe in words because it involves the sound effects associated with the outer, middle and inner markers of the landing system. Anyone familiar with avionics (aviation electronics) will appreciate the realism of the ILS implemented in *IFR*.

Here again, the controls respond quite smoothly. For an IFR-only simulator, this one is another winner at $29.95 US (*we don't know of a UK source – Ed*).

Flight by Anger

Lest you think that the yanks have completely taken over the simulator market, Anger Productions offers *Flight* by C. Johnson.

At a top speed of 400 knots and the sound of a roaring jet engine, *Flight* is definitely in the large aircraft category. It allows you to fly between eight English airports.

You navigate using a grid system that takes a bit of getting used to. But the major problem is that *Flight* comes with no instruction manual, only an instruction card. Complete instructions are available when you start the program, including a map showing the grid system. But it's almost a necessity to copy that map on to paper; otherwise you will find it very difficult to navigate properly.

In the middle of the screen is an area where instructions appear. This simplifies your pilot duties; I'm not sure that it's very realistic however.

A window view is included. While sitting on the ground you can see the runway; but once you're airborne, the graphics subside to a green field for the ground and blue for the sky.

Operation of *Flight* is very smooth, and the instructions make it easy to navigate. This program reminds me of early versions of *Runway 64* (that program is not included here since I wasn't able to obtain the current version). Early versions of *Runway* were written entirely in Basic and responded very slowly: *Flight* does not suffer those problems, but looks somewhat similar graphically.

I'm sure that the local availability of *Flight* will make it a popular item in Britain at £9.95, but it does lack the realism and complexity of some other offerings.

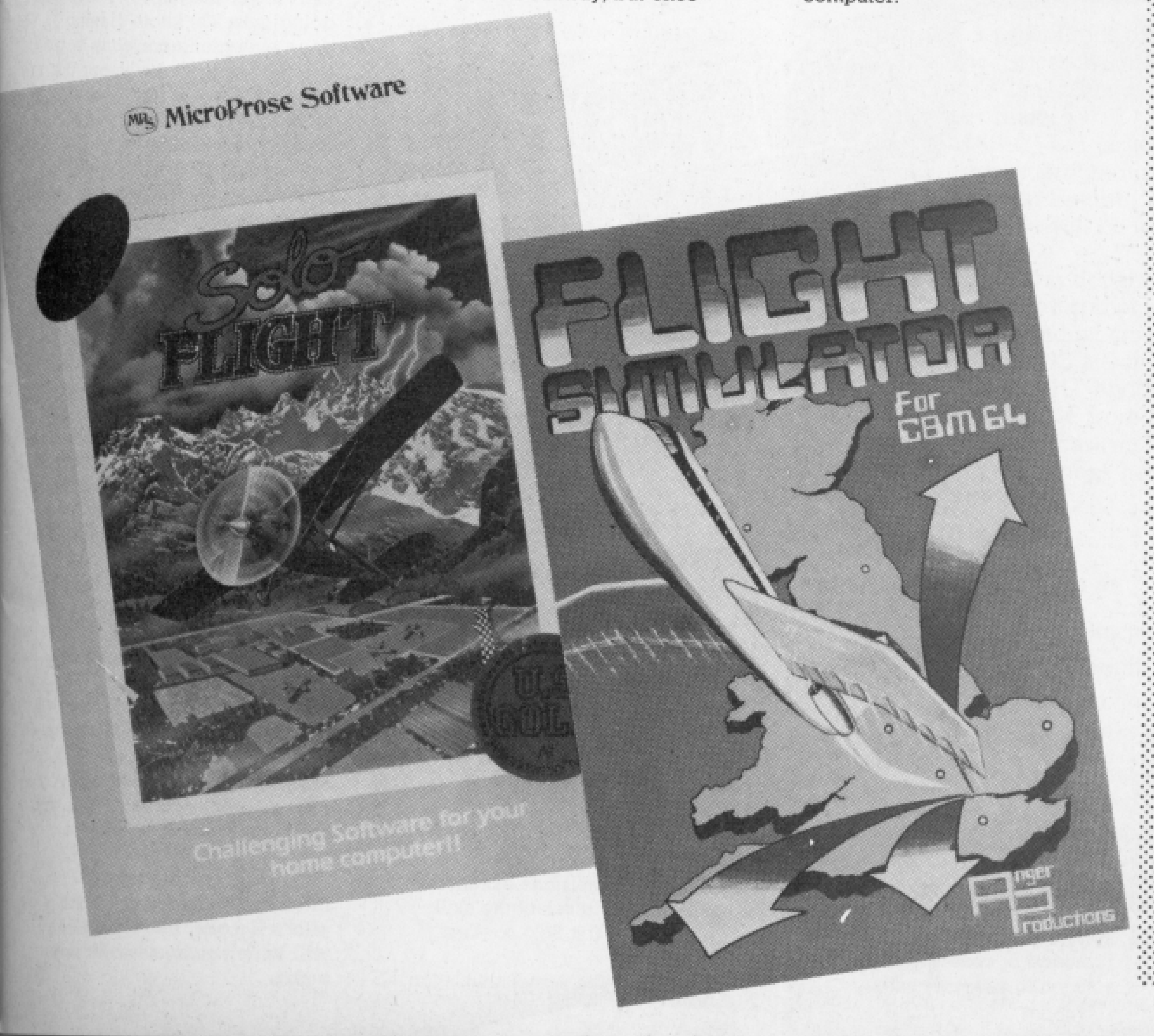
For an alternative (and rather harsher) judgement, Chris Durham comments: "this was one of the first flight simulators to be released for the 64; as such it had a good chance to capture a large share of the potential pilots who owned a 64. Unfortunately, potential is about all it does have since it bears about as much resemblance to flying a plane as driving a computer.

"The graphic representation of Britain is excellent and a small dot shows where you are and moves as you watch; however, that's the only movement you're likely to see in the whole program because the 'view' through the cockpit window is non-existent. The instructions are also rather poor; some of the instruments are not even mentioned!

"There also appear to be a couple of small 'bugs' in the program. Try as I might I cannot get the undercarriage to stay up; it goes up and down like a yo-yo seemingly at random (or rather every time I put it up it comes down of its own accord after a few seconds!). The second problem may just be me, but every time I try to land I get an 'Emergency Climb Alarm'. This appears to lock the controls so I can't do anything about it anyway. No matter how accurately I follow the landing instructions it gets me every time.

"After two months I still haven't landed; and therein lies another problem – there is no 'skill' level to alter. There are eight different airports to 'fly' to, but if you choose one of the further ones you'll die of boredom before you ever get there.

"All in all I was rather disappointed in this offering; there are now better simulators on the market at lower prices."

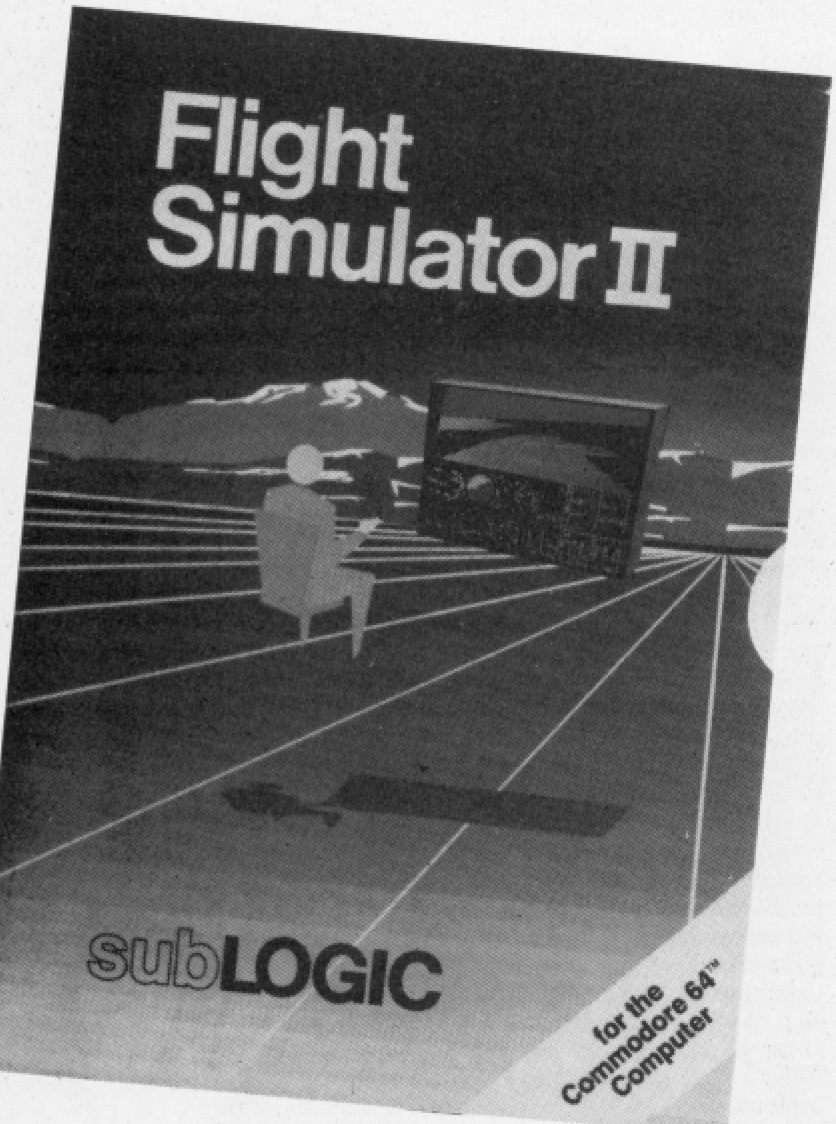


Flight Simulator II by Sublogic

About 150 kilometers east of my home is the University of Illinois at Champaign-Urbana. A lot of really neat things have come from the U of I – including Sublogic Corporation and an amazing item called *Flight Simulator II*.

Sublogic's first simulator was written in 1977 for a 16K Apple computer. *FS II* is a much upgraded version of the original, including full colour and breathtaking three-dimensional graphics – it's very difficult to describe *FS II* in a few words, and even more difficult to do justice to the beautiful graphics.

The first thing that catches your attention is the packaging. *FS II* comes complete with a pilot's operating handbook and a flight manual ... and a book on flight physics and aircraft control that includes a basic flight course! Nearly 200 pages of documentation, in two books, including realistic reproductions



of flight maps to support the 80 (!) airports programmed into the package.

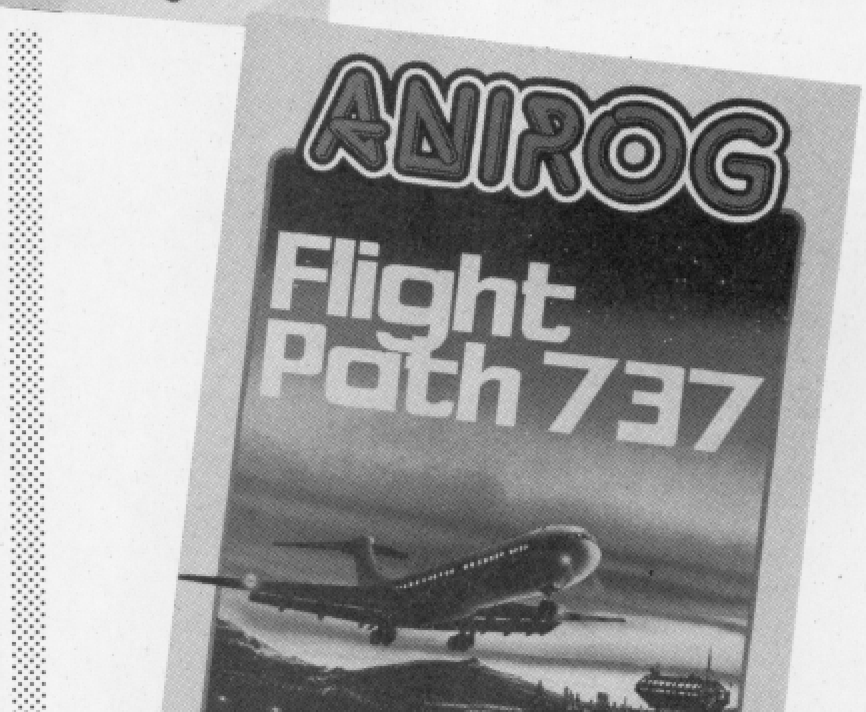
When you boot the program, you find yourself sitting at the end of the runway at Meigs field on the shore of Lake Michigan in downtown Chicago. Ahead are the twin towers of the Hancock building. As you take off, you may select from one of nine views or use your radar, zooming it in or out to suit your needs.

You can see the Sears Tower and other Chicago landmarks. A very powerful editor allows you control over forty different flight parameters – you can set the levels for not one but *two* layers of clouds, for instance.

I decided that it was appropriate to turn my plane south and head toward Willard Field in Champaign on my test flight. As I did, Interstate 57 appeared off to my left: south of Kankakee, the checkerboard pattern of Illinois corn fields appeared...

Land marks are quite detailed, but only available in the vicinity of the airfields. After all, a 170K disk can only hold so much!

A communications radio, two navigational radios, a transponder, and an emergency locator transmitter are included. So operation is quite realistic: you must tune the receivers to the proper frequency yourself.



When you enter the range of the control tower a message will appear on the top of the screen, provided of course you have your radio properly set!

FS II allows you to select day, night, or dusk flight; and when you become tired of flying normally, a World War I flight game is included too!

Is *FS II* the perfect flight simulator? I think it's as close as I've seen. The only drawback I found was the feel of the controls. They didn't seem to be *slow* exactly, but they did seem to be dampened, like the needle on a meter. Incidentally, you can select either keyboard control, or joystick control, or a combination of the two. You may even use two joysticks if you have them.

At $49.95 US and £41 (disk only) in the UK *Flight Simulator II* is in the Cadillac price range. Without a doubt, *FS II* includes Cadillac type features. I fell in love with it!

Flight Path 737 by Anirog

This £7.95 flight simulator is now available on tape (with TURBO load) or disk, ensuring little time is wasted getting started. It also runs on Vic (with 16K expansion) or the 64.

Initial impressions are good; the opening music is excellent and you get to select the skill level from 'First Solo' to 'Test Pilot'.

You start the actual simulation looking at a fairly realistic cockpit display with the runway somewhere in front of you; I say 'somewhere' because the first thing you have to do is line up the aircraft on the correct heading before you can take off. This is fine to begin with, but gets rather monotonous when you have to go through the routine every single time.

Having taken off you must climb rapidly in order to clear the mountains which suddenly loom ahead – not forgetting of course to raise the flaps and undercarriage! Unlike the Anger Products effort, you can see the mountains through the windscreen (even if they are static!) and sometime while crossing the mountain range you have to change course for the destination airfield.

You then start your descent, and the simulation here is quite good; ten miles out you get a high/on-line/low indicator plus a visual impression of the runway in the distance. There is a lot to think about since your speed increases as you descend, the undercarriage has to be lowered while still above 300ft and you can't lower the flaps if you're doing over 200 knots. Having done everything correctly you touch down with a whisper (or in my case a heavy thud!) and get a message telling you how good, or bad, your landing was.

Obviously you are going to make mistakes the first few times and these are all trapped; unfortunately all you get is a text message on a blank screen telling you what you did wrong, and then you have to start all over again from the beginning – even if it was just that you forgot to lower the undercarriage above 300ft. What's wrong with an undercarriage alarm? Why not let the plane actually crash? As it is, the easy option of stopping the program the minute you make any mistake, however minor, can get very frustrating.

Nevertheless, I kept having to have one more try to see if I could get it right *this* time; and such addiction is what makes a good game.

Unlike some flight simulators I have seen on the Spectrum, this is still not *real* flying; you only have one place to go to and you can't do anything fancy while you are in the air. It is however a step in the right direction.

As long as you aren't intending to go for a private pilot's licence, this simulation will keep you amused for some hours.

User-friendly design: Six Rules for better programs

Part One of a series

by Chris Preston



This is the first article in a new series intended to help you write better programs. And when we say 'better', we don't mean Faster, or Smaller, or Containing Lots of Complicated Things that Nobody Else Understands and Neither Will I in Six Month's Time. No, this time around we want a 'good' program to be one which is a joy to use, whether you have just picked it up from the dealer or have been using it for two years.

A typical program has three stages. The first is a short *initialisation* section which carries out various things which are done once and once only – such as dimensioning arrays and setting initial values of variables. The second part is the *data entry* section, where the user is expected to give the program all the information it requires. After that the program passes into the third section, *processing*; there all the real work is carried out.

At the end of processing the program may finish. Or it may go back for some more data entry – as in an invoicing program, where once the details of a customer's order (the data entry) has been keyed in with an invoice produced and the value of the purchase sent to the customer's file (that's the processing), the program returns to data entry for the next invoice.

As far as the user is concerned it is section 2, the data entry part, which decides whether the program is 'good' or not. He or she does not care how polished and efficient the processing section is, or what clever tricks the programmer gets up to; the user just wants to be able to enter the data quickly and easily, without having to sit with the manual on one's knee to work out which button to push next.

The trouble is that far too many programmers see the program simply in terms of the *processing* section.

To them data entry is an annoying prelude to the delights to come. A typical programmer is like a child gobbling down dinner as fast as possible so that it can get started on the chocolate gateau.

Add to that the fact that writing a good data entry section involves an awful lot of hard work. The net result? This all-important aspect of programming gets skimped terribly.

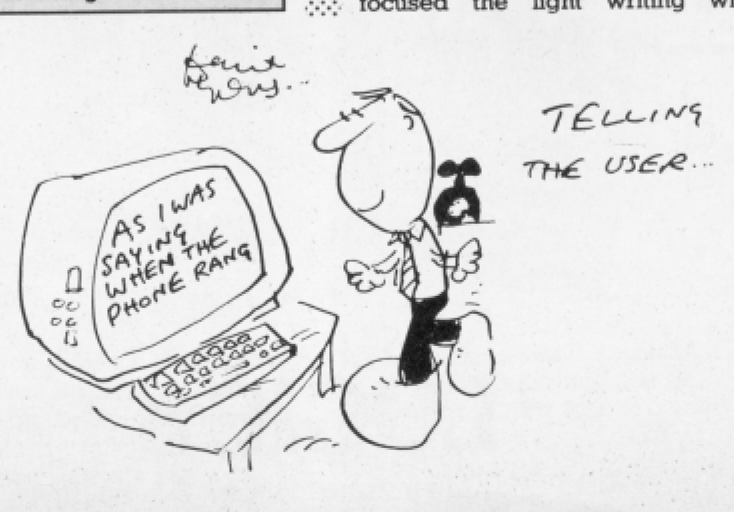
Remember this maxim: **always try to make the user's life as easy as possible**. You may *think* a particular program of yours is easy to use, but then you would: you wrote it! Your user may not be as good a typist as you and not able to find the X key immediately. He or she may be short-sighted and unable to distinguish easily all the text you have crammed on to the screen. The computer may be sited under a bright flourescent light to confuse things.

Above all, what seems obvious to you may be an inpenetrable wall of incomprehension to the user.

Before looking at the requirements for a good data entry routine, there are a few requirements for screen display which are often overlooked.

1 Every screen should have a title telling the user exactly what he or she is doing.

If the user selects an option to modify a file, the program should put a banner at the top of the screen saying "FILE UPDATE" – preferably with the name of the file too, as in "ADDRESS FILE UPDATE". That way if he gets distracted by a phone call, he can come back to the machine and tell at a glance what he was doing. Don't forget that a new user may be able to find this out from the screen display without a bit of head-scratching – and when users have to think, they make mistakes.



TELLING THE USER...

2 Choose suitable colours for the display.

Scientific tests have clearly shown that, for prolonged use, the best (which in this case translates as 'least strenuous') video display is probably green or amber text on a black background; black and white is no good at all! Some computers do not give any choice, but even those with a monochrome display usually give the programmer the choice of light-on-dark text or dark-on-light text.

If you have light text on a dark ground, when the tube is poorly focused the light writing will



SUITABLE COLOURS...

spread out without a drastic effect on legibility. On the other hand, you use dark text the bright background will spill into the letters making it impossible to read clearly. This is especially important if an ordinary TV is being used rather than a monitor, because a TV cannot produce the same quality of display.

In addition, though, Vic and 64 users have the benefit of being able to show many colours on the screen. Use them by all means – you'd be daft not to take the opportunity to make the display more meaningful and more immediately comprehensible. But be careful. Unless you are an artist or an interior designer, and know all the pitfalls of putting clashing colours together, you can easily produce a technicolour nightmare which could quickly produce a technicolour yawn in a user!

3 Error messages should always appear in the same place on the screen.

The best place for this is probably the bottom line of the screen. Putting the text in the same place all the time means that the user does

not have to search the screen for the error message.

In addition, the error text should be made to stand out from the screen by using reverse video or some contrasting colours. We can get away with dark-on-light here, because the message only has to be read once before (hopefully) it is removed from the screen; that is not too much of a strain on the reader.



DON'T GO OVERBOARD...

Of course, where possible an error message should always be accompanied by a noise from the computer to draw the operator's attention. Suitable noises are easy to generate on the Vic and 64 (but again, please don't go overboard on these); most Pets will respond to PRINT CHR$(7) with a pretty little warble from an internal speaker.

4 Remove prompts from the screen once they have been obeyed.

If you display a prompt on the screen saying something like PRESS ANY KEY TO CONTINUE, perhaps while waiting for the user to put a new disk or tape in a drive, it should disappear once a key has been pressed.

This is easy enough to do by overprinting it with a string of spaces:

```
100 PRINT "LOAD A BLANK
    TAPE IN THE CASSETTE
    DECK"
110 PRINT "AND PRESS ANY
    KEY TO CONTINUE"
120 GET A$
130 PRINT "[CUP][CUP]";
    SP$: PRINT SP$
```

The string SP$ is just a string full of spaces. (It saves a lot of space to say PRINT SP$ every time you want to print 40 spaces rather than a PRINT command followed by quotes and 40 taps on the space bar.)

You can also print a smaller number of spaces (for blanking part of a line) by using LEFT$(SP$,15). As well as using less memory (only nine bytes), it is also obvious when listing the program exactly how many spaces are going to be printed – it is quite difficult to count spaces in a listing! Writing programs is quite enough work without making it unnecessarily hard on yourself.

Again prompts can be made to stand out from the screen by using contrasting display modes or colours.



IT SHOULD DISAPPEAR...



FIT THE USER...

5 Make your text fit your user.

Different people wear different-sized clothes; Twiggy would not feel comfortable in one of Cyril Smith's suits (especially if he was still wearing it!). If possible, then, tailor your text to your user. If the operator is an experienced computer user, you can be far more brief in your instructions ("MOUNT A BLANK CASSETTE") than you can if they have never seen one before ("PUT A BLANK CASSETTE INTO THE DRIVE, CLOSE THE DOOR, AND PRESS THE PLAY BUTTON")

More often than not, of course, the programs will be used by a range of people of varying experience. The important thing here (and it is very difficult to achieve) is to write an all-purpose program – one that is sufficiently self-explanatory to be easily controlled by a first-time user, but one which a regular user does not find insufferably repetitive.

A good example of how you might manage this is the WordStar word processing package. It has three 'levels' of user instructions, from one with no prompts at all to one where almost every key depression produces another menu of options which can be selected. The user picks the one he or she is happiest with. In addition it is possible to ask for 'help' on any topic relating to the use of the program, in which case text is displayed on the screen explaining the point in detail. (The subject of menus and 'help' screens will be covered in a later article in this series.)

6 USE CAPITALS.

The point here is that CAPITAL LETTERS are twice the size of lower case ones: remember that short-sighted old codger with a clapped-out video display and bright light overhead. While it may look very pretty mixing upper and lower case letters, remember that a program should be useful as well as nice to look at.

The only possible exception is the Vic-20, because the letters are so big anyway; but 40 or 80 column screens should usually be left in upper case.



SHORT-SIGHTED OLD CODGER.

Next issue: down to the nitty-gritty with data entry – how to do it (and how not to do it).

ANI



Graphics — *This program enables you to paint and draw on the screen by controlling a simulated pencil and brush which can be manoeuvred either by keyboard or joystick. This utility can be used to create and edit background pictures stored in half the normal memory space by use of innovative data compression techniques. Together with its automated drawing techniques; circle, line and centring routines; background colour options; and tape load and save choices; this makes the creation of an artistic wonder possible for ALL USERS.*



Animation — *The animation utility allows easy manipulation of sprite data pictures, several sprite designs, and a multitude of musical compositions and everyday sounds. This facility is a compilation of all the facets of the graphic and sound utilities.*



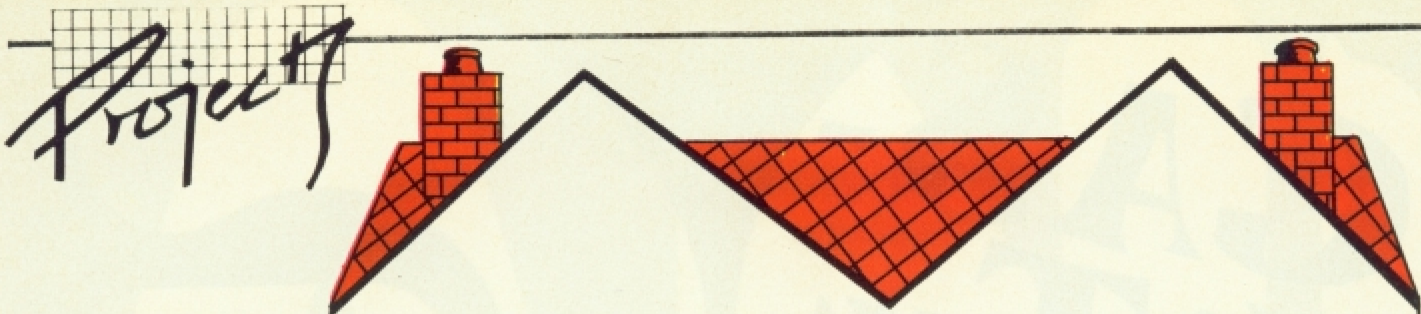
Sound — This section of the package turns your Commodore 64 into an intelligent synthesiser on which you can choose to play solo or duet on a piano, organ, harpsicord, xylophone, harp, bagpipe, harmonica, violin, banjo and flute with variable tempo and pitch. The sound routine includes replay, store, fetch, load and append options, so making the composition of superb audio effects an extremely simple task.

3 New Utilities from ANIROG in One Package GAS-KIT-64

Develop the artistic and musical capabilities of your Commodore 64 with an astounding extension of its Basic by 23 commands, allowing you to use the monitor as a canvas to generate high resolution pictures and the keyboard to compose music for your own programs/entertainment. This completely interactive package enables you to create masterpieces quickly thus shortening and simplifying program writing. For instance, create a work of art to use as a backcloth, add your sprites, then compose a musical piece for background music together with a few everyday sounds, bring them all together, and you've produced an animated cartoon to music in a short time, by use of a simple extended Basic Program. GAS-KIT-64 even allows incomplete tunes and designs to be stored and finished later, and to help you on your way, educational and demonstration programs and help instructions are included together with full menus and picturegrams. When all is complete you can store your productions on your own Basic programs.

ANIROG

Trade Enquiries: Anirog Software Limited, 29 West Hill, Dartford, Kent (0322) 92513/8
Mail Order: 8 High Street, Horley, Surrey. 24 hour Credit Card Sales. Horley (02934) 6083
Payment by Cheque: PO Access Visa Postage and Packing 50p Overseas £2.00



Control your home with your Vic or 64

by Chris Durham

Part Two of the series

This month we continue our series on how to control your home with a few ways of getting more out of the User Port by adding another part of our system.

Last month we showed you how a simple interface unit could control up to eight mains-powered devices. This month we are going to go one stage further and give control over the same eight devices – but using only half the number of lines from the User Port.

And for those who like the ideas mentioned last month, but don't want to build, we look at some of the commercial units currently available.

First, a quick overview of how the User Port works. The User Port is located at address 56577 in the 64 memory map, 37136 in the Vic memory, and it can be PEEKed and POKEd like any other location.

Those of you who have not played around with the User Port may be wondering how the Port knows whether it is being used for input or output. This aspect is controlled by a register (or address) within the computer called **Data Direction Register** which is located at memory address 56579 on the 64, 37138 on the Vic.

There is a direct relationship between this register and the User Port; each of the eight 'bits' in the register determines whether the corresponding line in the User Port will be an input or an output. If the 'bit' is set to a 1, the line is an output: and if it's 0, the line is an input.

So setting the Data Direction Register to the value 15 will set up the first four lines of the Port as outputs and the remaining four lines as inputs (Figure 1). Once this has been done it is then merely a matter of POKEing a value into the User Port address to set the lines on or off. To get an input requires a PEEK command to read the value of the input lines.

Logical digression

In order to use the facilities of the User Port to the full it is necessary to understand how the operators **AND** and **OR** work.

Together, these allow you to set or unset individual 'bits' in an address without affecting the rest of the address. Each 'bit' in an address has a value equal to 2^n where **n** is the bit number (see Figure 2).

If we **OR** an address with a number, the final result sets to 1 all the bits which were 'on' in the address to start with *plus* those bits which make up the ORed number (see Figure 3). With the **AND** function, the result is to leave set only those bits which are common to both the address and the number (Figure 4).

If you look at the code we used last month to turn the individual lines on and off you should now be able to understand how it works. But you may wonder why we set the line to 0 to turn a device on and 1 to turn it off; surely that's the wrong way round?

In fact the interface we built last month is designed to work on 'negative logic'. Without going into too much detail, this is done to make the circuit more efficient and fail-safe; if the line is broken or any wires touch each other the mains device switches itself off.

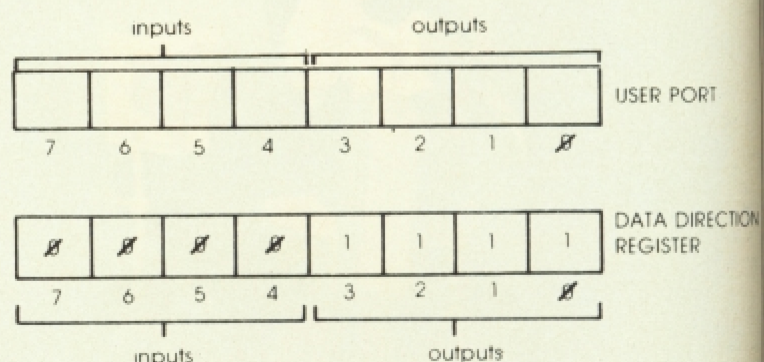


Figure 1: The Data Direction Register

The Control interface

This is the circuit that is going to do the decoding for us – and thus to allow more efficient use to be made of the User Port. It is based on a device which will decode four bits into their 16 possible combinations.

If we connect this widget across the first four lines of the Port, then by POKEing any

THE 64 SOFTWARE CENTRE
1 Princeton Street, London WC1
01-430 0954

Business accounts

Sales Ledger (Anagram) d	75.00
Purchase Ledger (Anagram) d	75.00
Sales Ledger (Ramtop) t	14.50
Purchase Ledger (Ramtop) t	14.50
Accounts package (Ramtop) d,t	115.00
Cashbook (Microsimplex) d	172.50
Cashbook (Gemini) d	64.95
Cashbook (Gemini) t	59.95
Final Accounts (Gemini) d	64.95
Final Accounts (Gemini) t	59.95
Inventory 64 (MMS) d	29.95
Future Finance (CBM) d	75.00
Stock Control (Gemini) d	24.95
Stock Control (Gemini) t	19.95

Home applications

Budgeteer (Adamsoft) t	8.95
Checkbook Manager (Adamsoft) d	14.95
Home Accounts (Gemini) d	24.95
Home Accounts (Gemini) t	19.95
Home Office (Audiogenic) t	14.95
Home Accounts (Fieldmaster) d	29.95

Database systems

Magpie 64 (Audiogenic) d	99.95
Mailpro 64 (Kobra) d	79.35
Oracle 64 (Kobra) d	113.85
Practifile 64 (MMS) d	44.50
Simply File 64 (Simple) d	60.00
Superbase 64 (Precision) d	99.95
Figaro 64 (Saxon) d	86.25

Spreadsheets

Busicalc (Supersoft) d,t	17.95
Busicalc II (Supersoft) d	81.65
Calcresult Adv. (Handic) d	99.00
Easy Calcresult (Handic) d	49.95
Multiplan 64 (Kobra) d	99.95
Practicalc 64 (MMS) d	44.50
Practicalc 64 (MMS) t	39.95
Multiplan (US) d	70.00

Programmers' Aids & Utilities

Acos+ (MH) t	8.95
Arrow (Supersoft) c	44.85
BC Basic (Kuma) c	57.50
Chartpak 64 (Adamsoft) d	24.95
Chipmon (Mr Chip) t	12.50
Forth 64 (Audiogenic) c	29.95
Forth 64 Advanced (Hesware) c	50.00
Graphics Designer (Adamsoft) d	19.95
Graphix 64 (Supersoft) t	11.50
Logo (CBM) d	57.50
Master 64 (Supersoft) d	71.30
Mikro Assembler (Supersoft) c	59.80
Hesmon Monitor (HesWare) c	34.95
Pilot (CBM) d	75.00
Printlink 64 (Supersoft) t	32.20
Quickchart 64 (Adamsoft) t	6.95
Screen Graphics (Adamsoft) d	14.95
Simons Basic (CBM) c	47.50
Sprite Aid (Adamsoft) t	6.95
Stat 64 (Handic) c	29.95
Superdisk Utility (Adamsoft) d	12.50
Synthy 64 (Adamsoft) d	14.95
The Tool (Audiogenic) c	49.95
Turtle Graphics II (HesWare) c	50.00
Ultrabasic 64 (Adamsoft) d	24.95
Ultysynth (Quicksilva) t	14.95
Victree 64 (Supersoft) c	56.35
64 Doctor (MMS) d	19.95
Scope 64 (ISP) d	18.95
Scope 64 (ISP) t	17.95
Master Composer (Access) d	44.95

d=disk t=tape c=cartridge

ALL IN STOCK NOW – Callers welcome
(10am – 6pm incl Saturdays)

Mail Order: Cheque or PO – add £3 for items over £30, others free.
Credit cards (Access/Visa): phone or write. Immediate despatch.

The 64 Software Centre,
1 Princeton Street, London WC1

Please supply the following items:

1 .... Qty..... @£ ....
2 .... Qty..... @£ ....
3 .... Qty..... @£ ....
4 .... Qty..... @£ ....

TOTAL £ ....
POSTAGE £ ....
TOTAL £ ....

Name .... Address ....
Visa/Access Card No ....
Date .... Signature ....

Word Processors

Heswriter (Hesware) c	34.95
Paperclip 64 (Kobra) d	98.90
Simply Write 64 (Simple) d	40.00
Simply Write 64 (Simple) t	35.00
Vizawrite 64 (Viza) d	79.95
Vizawrite 64 (Viza) c	89.95
Vizaspell 64 (Viza) d	59.95

Educational & Languages

Essential Italian (Dell) d	16.95
Essential Italian (Dell) t	14.95
Besieged (Sulis) t	9.95
Wordpower (Sulis) t	9.95
Time Traveller (Sulis) t	9.95
Just a Mot (Sulis) t	9.95

various subjects: Callisto, Collins, Commodore t

War simulations

Battle for Normandy (SS) d	34.95
Knights of the Desert (SS) d	34.95
Eagles (SS) d	34.95
Combat Leader (SS) d	29.95
Tigers in the Snow (SS) d	34.95
Geopolitique (SS) d	39.95
Operation Whirlwind (Broderbund) d	34.95

Flight simulators

Flight Path 737 (Anirog) t	7.95
Flight Simulator (AP) t	9.95
Flight Simulator (IFR) d,t	24.50
Flight Simulator II (Sublogic) d	47.50
Solo Flight (US Gold) d,t	14.95
Heathrow (HC) t	7.95

Business Simulations

Commodities (Blue Chip) d	50.00
Stock Exchange (Blue Chip) d	50.00
Baron (Blue Chip) d	50.00

Games

A large assortment on disk, cassette and cartridge.

Project

number between 0 and 15 we can set the relevant output on the device.

That isn't all we have to do, though; the device can only have one of its outputs on at any one time. This means that if we switch another device on, the first device promptly switches off again. What we need is some form of storage so that we alter one device at a time *without affecting* any *others*; a storage device that does this is called a **latch**.

Diagram 1 shows the block diagram of the circuit we will be using. Each of the two latches takes eight lines from the decoder; four to switch the latched outputs on and four to switch them off. A total of eight controlled lines are then converted to negative logic by the final buffer/driver.

This last serves two purposes; in addition to inverting the logic state , it provides the necessary power to drive the mains controller.

In order to conserve the limited power available from the computer I have used CMOS (Complementary Metal Oxide Semiconductor) devices throughout. Unfortunately, CMOS has an extremely limited power output and cannot provide sufficient current to operate the opto-isolators over a long length of cable.

The final bit of the circuit is therefore a special High-power CMOS (HCMOS) device – with all the characteristics of a CMOS device, but with power output levels equivalent to the higher power TTL (Transistor/Transistor Logic) devices. This is a new breed of integrated circuit and

128	64	32	16	8	4	2	1
2^7	2^6	2^5	2^4	2^3	2^2	2^1	2^0

Figure 2: A quick summary of the bits in a byte with their decimal equivalent

37	Ø	Ø	1	Ø	Ø	1	Ø	1
OR								
12	Ø	Ø	Ø	Ø	1	1	Ø	Ø
=								
45	Ø	Ø	1	Ø	1	1	Ø	1

Figure 3: An OR example

37	Ø	Ø	1	Ø	Ø	1	Ø	1
AND								
12	Ø	Ø	Ø	Ø	1	1	Ø	Ø
=								
4	Ø	Ø	Ø	Ø	Ø	1	Ø	Ø

Figure 4: ... and an AND

may not be readily available from normal suppliers. If you do have difficulty, your supplier should be able to obtain it from the address given in the parts list.

Construction details

This unit requires a custom-made PCB, the layout of which is shown in **Diagram 2**. The component layout is shown in **Diagram 3**.

For this board the construction is very straightforward. First solder the wire links, connecting plugs and DIL sockets; then do the discrete components. Next, solder the two wires for the reset switch (if fitted); and then solder the first eight wires of the ribbon cable (the remaining wires will be used for the input board in the fourth part of the series. Leave at least 3in spare on the unused wires).

Finally, clean up the copper tracks with meths, getting off all the excess flux; check that there are no solder bridges and that all components are correctly mounted.

Once you have done that you can solder the ribbon cable to the User Port plug as shown in Figure 5.

The last stage is fitting the ICs into the sockets. Because we are using CMOS devices it is important that you handle them with reasonable care; they are particularly sensitive to static electricity, and careless handling can damage them irreparably. The best way is to earth yourself to a water-pipe (or similar) before touching the ICs. Put them carefully into the sockets, taking care not to bend any of the pins.

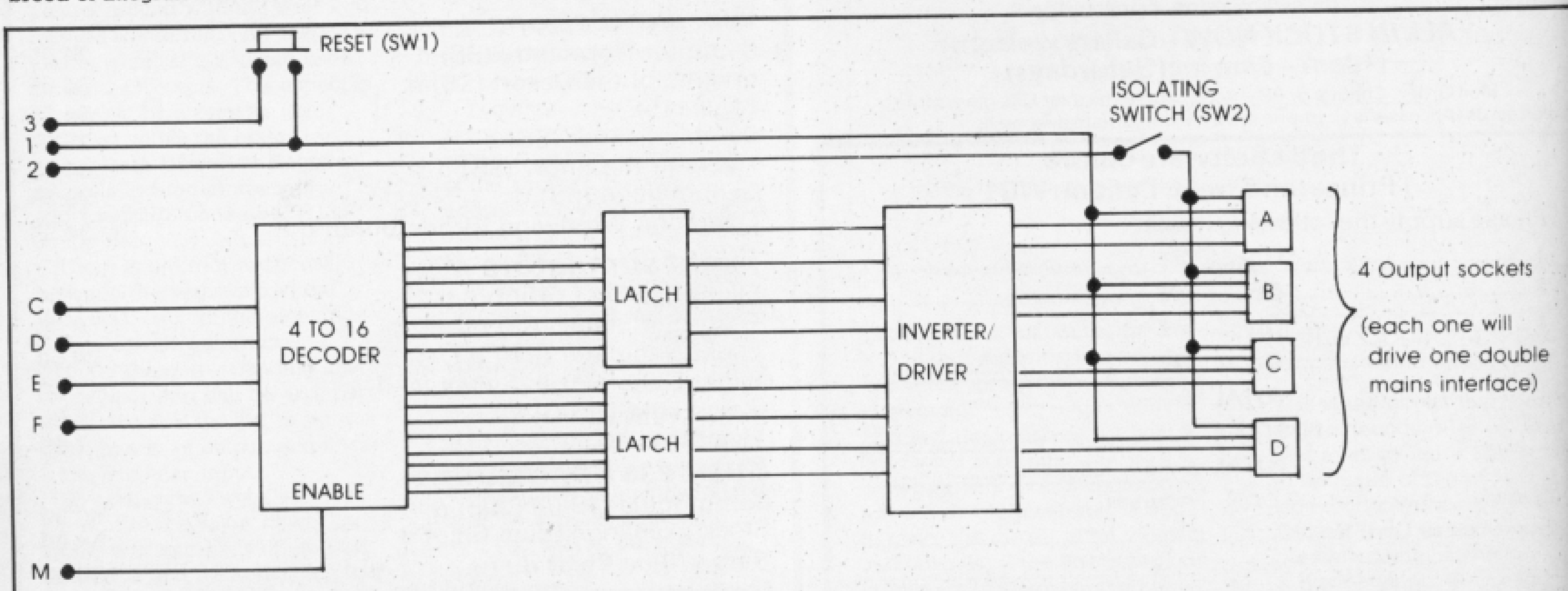


Diagram 1: The Control Interface Circuit

Into the box

The unit is now ready to mount into a suitable case – the one indicated in the parts list will allow both this board and the input board to be mounted in a single box (the input board will be mounted above this one). Having chosen your box you must now mount the output sockets and the isolating switch, as in **Diagram 4**.

If you have mounted more than two mains units in one box you can of course use any suitable output socket; so if you have all eight mains sockets in one unit you could use a nine-way D-type socket and connect it with just one cable.

The isolating switch enables all outputs to be switched off simultaneously; it also allows the unit to be set up by the computer without any mains devices being switched on accidentally.

I have also included a 'cold start' Reset switch. Pressing this will cause the computer to reset to the initial power-on state without actually having to turn the computer off – very useful for recovering from a crash or machine-code loop, though it does reset the Basic pointers too (thus effectively losing a Basic program in memory. Any machine-code programs will be unaffected by a Reset and can be restarted with a SYS command).

Turning on

The unit must be plugged into the computer prior to switching on – connecting it with the power on can easily damage one of the ICs. To test the Control Board, plug it into the computer, then plug the Mains Control Unit(s) into the output sockets and also into the mains.

Switch the computer on, switch the isolating switch on, then test each socket in turn; all mains sockets should be 'ON'. Now type ...

POKE56579,15: POKE56577,0

for the 64. Or, for the Vic-20:

POKE37138,15: POKE36136,0

Retest all mains sockets (which should now all be OFF). If either of these tests fails, switch off the computer immediately and check your board very carefully.

If all is well you can now type in the control program – note that there are different versions for the Vic-20 and the 64. This allows you to switch the mains devices on or off by pressing either the + or − keys followed by the

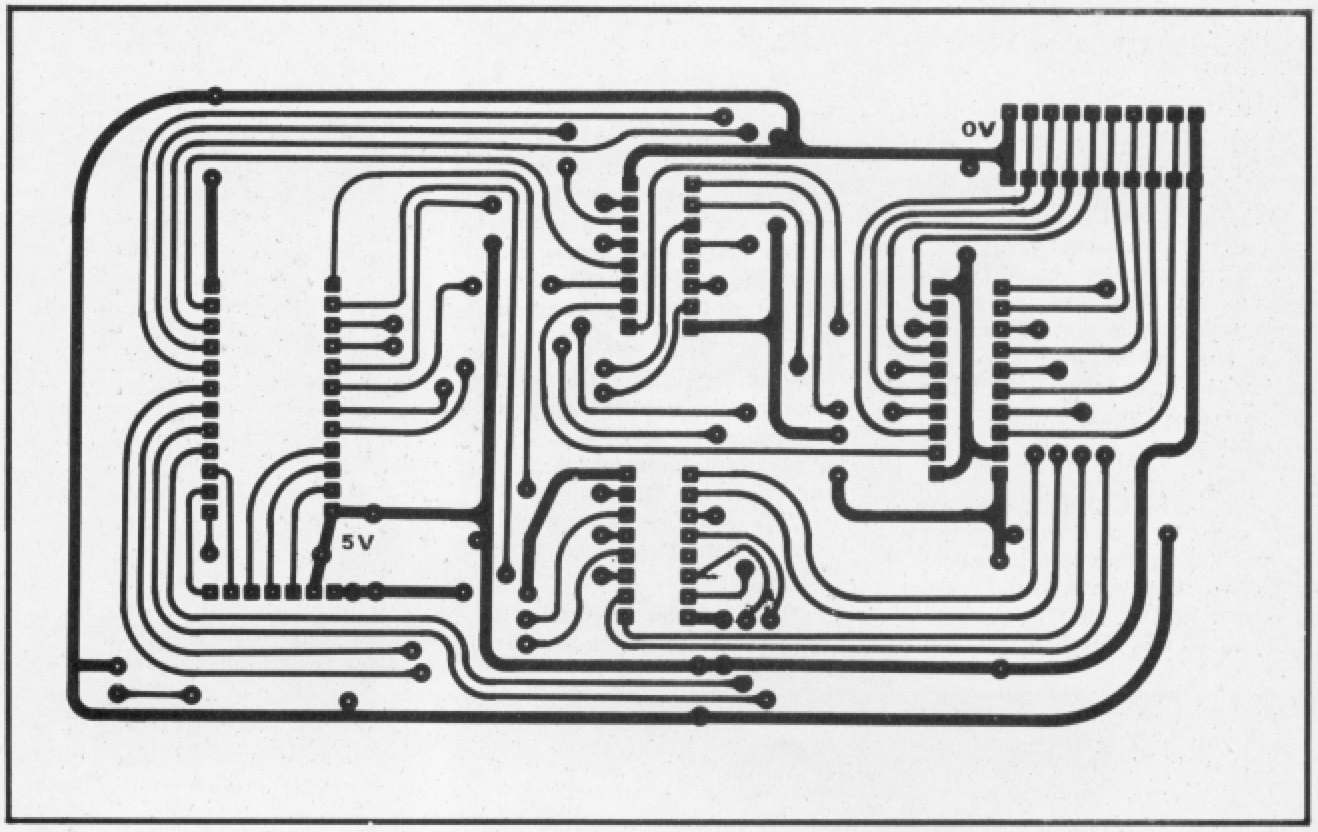


Diagram 2: Layout of the Control Interface PCB

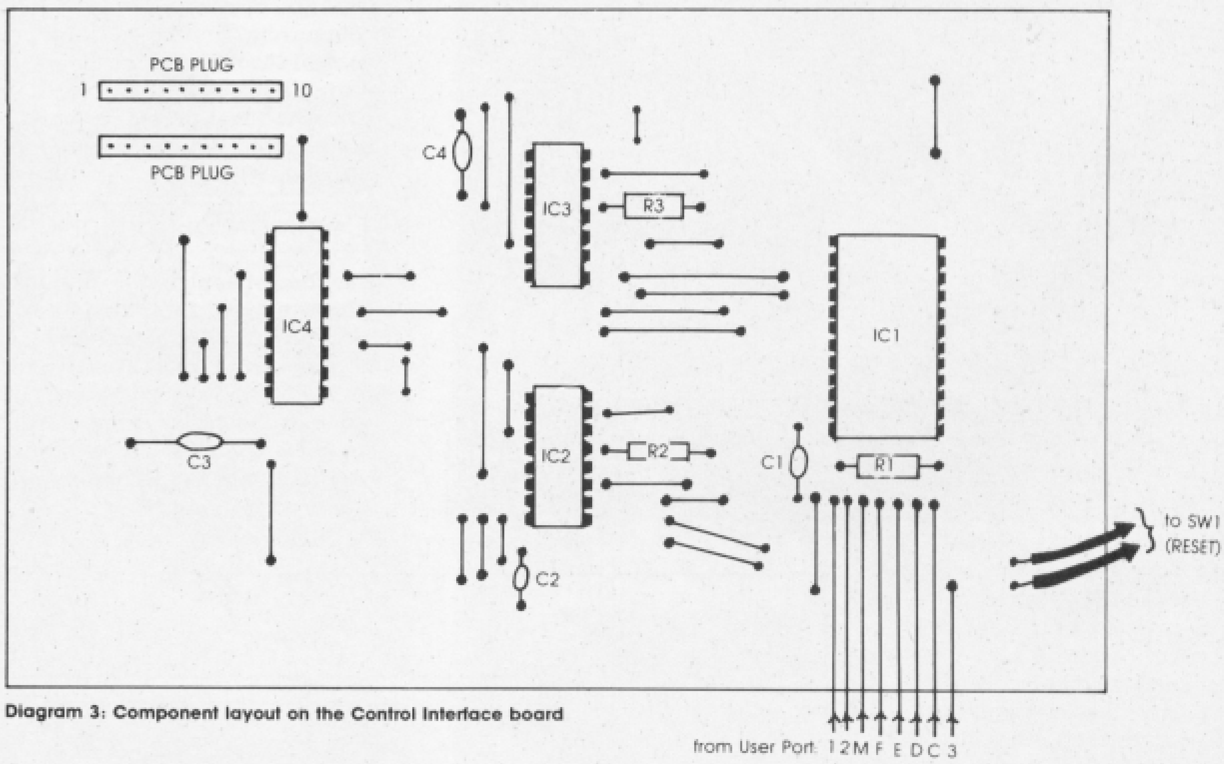


Diagram 3: Component layout on the Control Interface board

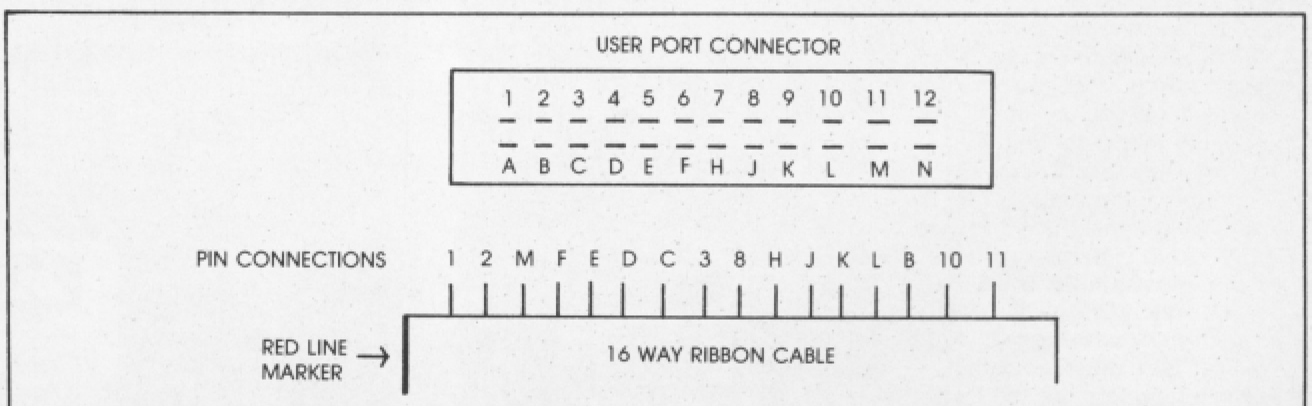


Figure 5: Fitting the ribbon cable to the User Port

device number. A screen indicator will show the state of all devices.

Once you have typed and saved the program you can complete the final test. This checks that the outputs respond correctly; pressing '+4' should turn on mains socket 4, for example, and '−4' should switch it off again. Test all sockets in turn and then in combination; if any tests fail then you have either made an error in the circuit board or in typing in the program.

Using the Control System

When using the control system the isolating switch should always be OFF until the program is loaded and run. This is because the computer sets up the User Port on power-up with all lines set as INPUTs: and in any case the state of the devices on the control board is indeterminate when power is first applied. Once the User Port has been set up correctly and all devices switched off, you can turn the isolating switch ON.

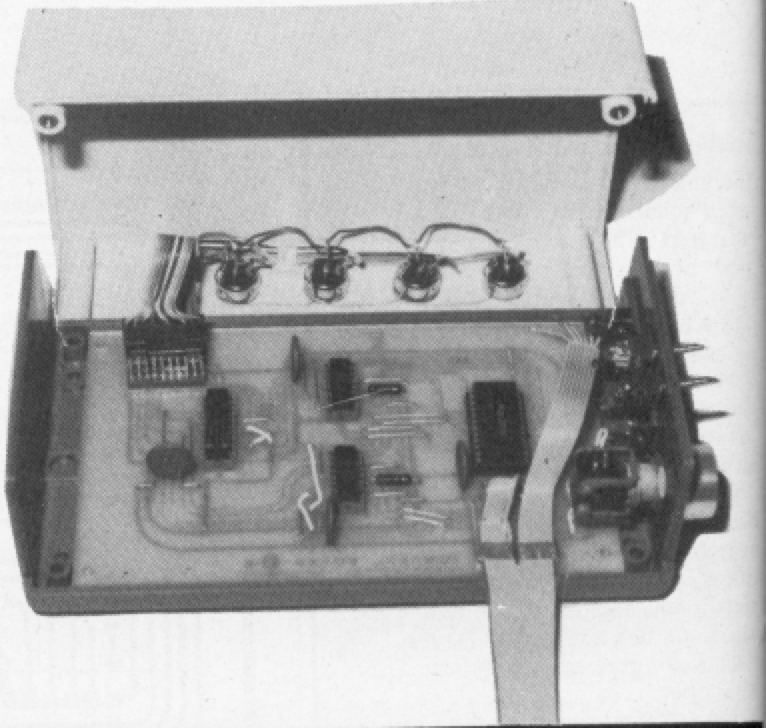
The code needed to use the control system is all contained in the demonstration program. **Lines 150 to 200** set up the control interface and lines 290 to 330 carry out the control functions. Note that one line from Port A (PA2) is being used to enable or disable the 4 to 16 decoder chip (CB2 on Vic). Only when this line is set low (0) will the User Port affect the output. You can therefore use the User Port for other things without affecting the mains control system while the line remains high (1).

Lines 310 and 330 show its use (it is set up by the DDR at address 56578 for the 64, 37138 for the Vic). By using similar code in your own programs you can set sockets to switch on at certain times of the day or night, switch lights on and off while you are out, or turn the heating on at pre-set times.

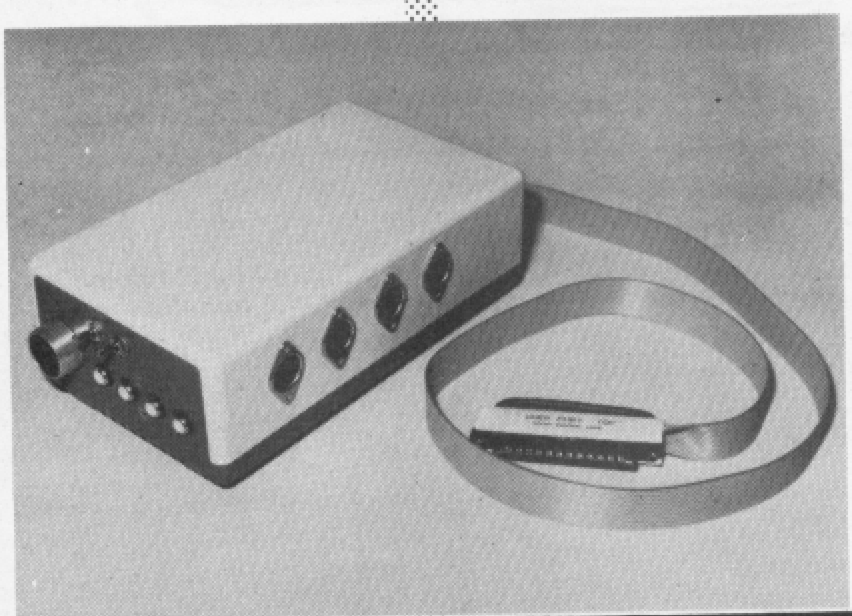
When typing in the programs note that the standard display control codes have been expanded to meaningful strings; eg <CLR> = Clear screen and <CD> = Cursor Down etc. You must replace these strings by proper codes.

There will be a program at the end of the series to allow you to do all these things in conjunction with the input board as well. In the meantime, the only restriction is your own imagination ...

That brings us to the end of Part 2 of the series; next month I will be covering a commercial unit that allows control through the mains wiring itself and a constructional project to build a remote control system using an Ultrasonic link.



The interior of the prototype unit showing connections to output sockets



The completed prototype unit shown without the isolating switch. (The sockets and switches to the right of the reset switch are for use with the input board)

Commercial control units

For those people who would like to expand their computer to control functions but have zero constructional ability and/ or facilities, here are details of some of the commercial control units I have managed to find working with the Commodore range of computers.

- **L.W. Staines & Co.** is producing an eight-bit controller board (**Interface 3**) which could be used for mains control with suitable relays; it also has similar **motor control** interfaces for anyone wanting to experiment with robotics. A review unit has been promised, but had not arrived by the time this article was written – if it turns up, details will be included later in the series. Prices are from £25 and the suppliers can be contacted at *Unit 2, Roding Trading Estate, London Road, Barking, Essex IG11 8BU – telephone 01-591 2900.*
- **VIC-REL** is a cartridge unit which plugs into the User Port and will control six output and two input lines. It is limited to a maximum voltage of 24v for the output lines and you will

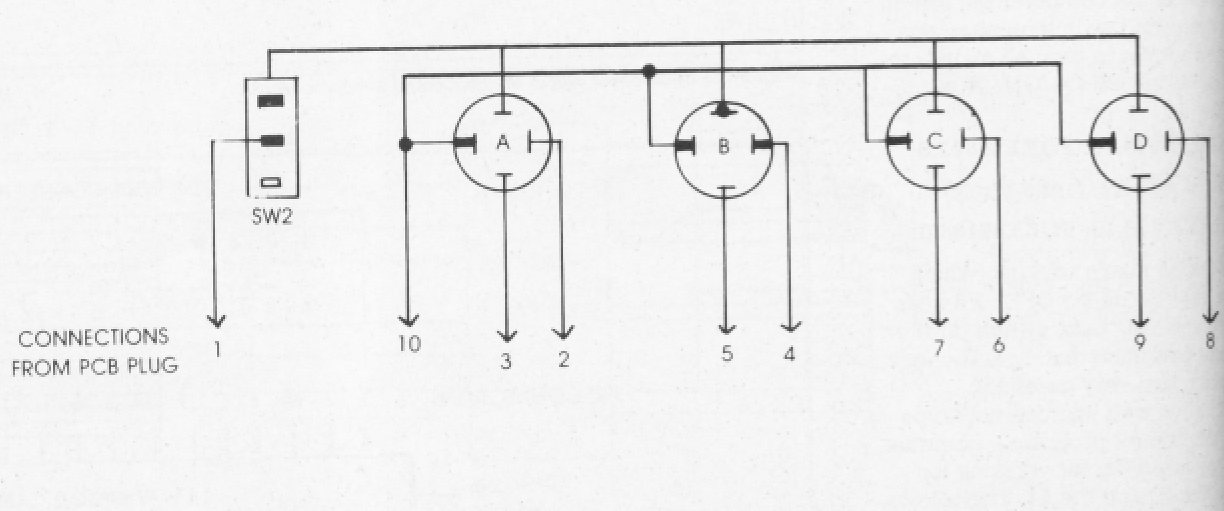
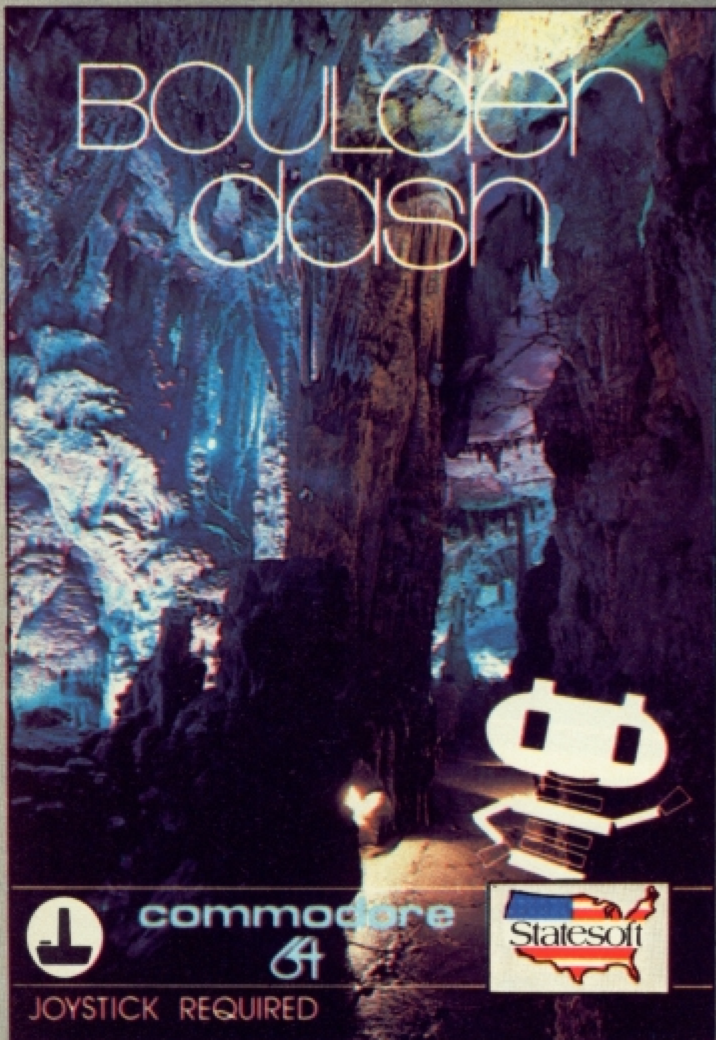


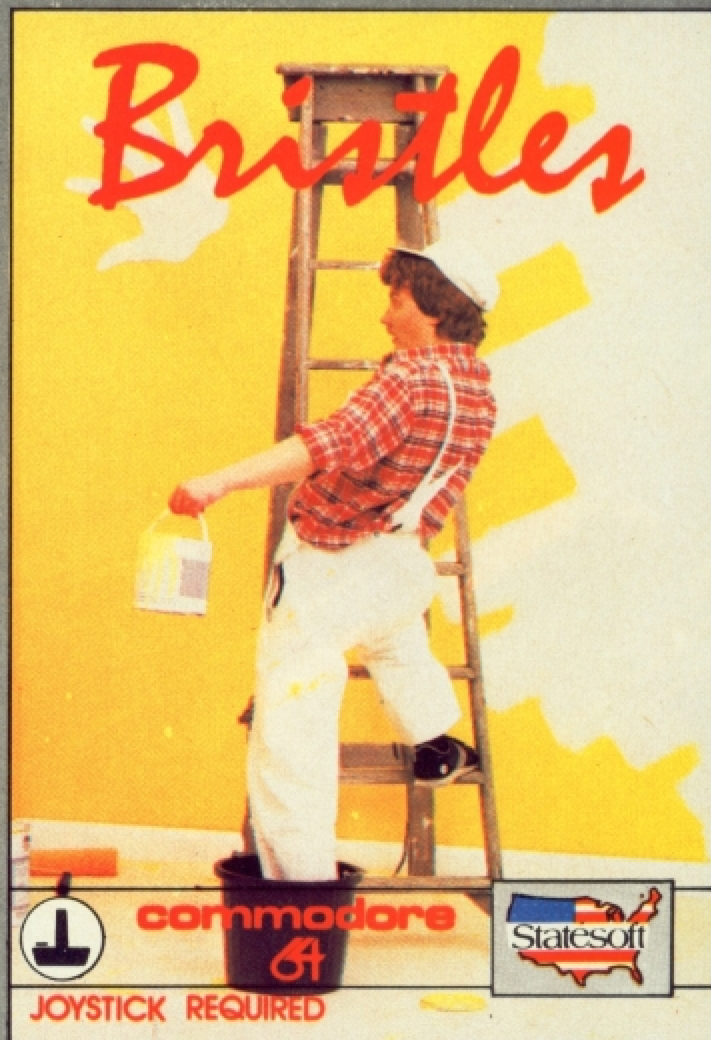
Diagram 4: Mounting the output sockets and the opto-isolating switch



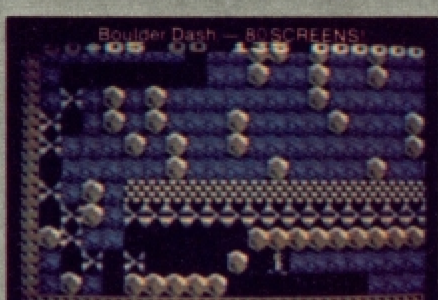
AMERICAN

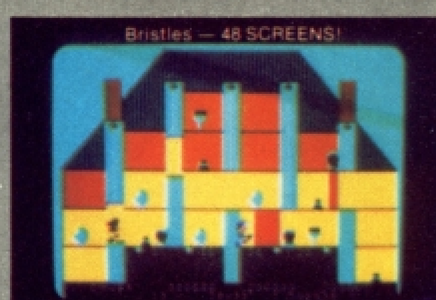
Big, Bold and Beautiful...





Starring Rockford
Clue:
You need strategy and planning to learn the 'Physics'.
16 caves scrolling screens.
Playable (Bonus Point) Intermissions
Limited lives and time.





48 Screens
Play in the Dark!
8 Player options with 'Sex Select'!

80 Screens **48 Screens**

Cassette £8·95 Disk £10·95

I wish to pay by cash/cheque/Postal Order/Access
To ACCESS:-
I authorise you to debit my Access Account with the amount of £
My ACCESS No. is

Name (as on Access card)
Cardholder's address
Signature

Really Something Else

STATE SOFT IN ASSOCIATION WITH FIRST STAR SOFTWARE N.YORK, USA

Statesoft

STATE SOFT LIMITED, BUSINESS AND TECHNOLOGY CENTRE,
BESSEMER DRIVE STEVENAGE, HERTS.
TELEPHONE 0438 316561

PRICE BREAKTHROUGH
Now only £59·95 inc V.A.T.



VIC and 64 users

Would you like to be able to access **any** of these peripherals from your computer?

- ⅓ megabyte disks (Commodore 4040 drive)
- 1 megabyte disks (Commodore 8050 drive)
- 10 megabyte disks (Commodore 9090 hard disk)
- Printers including a wide range of inexpensive IEEE and RS232 matrix and quality printers
- IEEE instruments such as volt meters, plotters etc.

Now you are no longer limited by the VIC or the 64's serial bus. Simply by attaching INTERPOD you can vastly increase the power of your VIC 20 and when used with the new 64, INTERPOD turns the computer into a really powerful system.

With INTERPOD the VIC and 64 become capable of running really professional quality software such as Word-processing, Accounting, Instrument control and many more.

INTERPOD will work with any software. No extra commands are required and INTERPOD does not affect your computer in any way.

Using INTERPOD is as easy as this:

Simply plug INTERPOD into the serial port of your computer, power-up and you are ready to communicate with any number of parallel and serial IEEE devices and any RS232 printer.

Price includes V.A.T., Postage and Packing. Delivery normally 14 days. Export orders at no extra cost. Dealer enquiries welcome.

Send cheque/PO now to:-

INTERPOD

Cheetah Marketing

Cheetah Marketing Ltd, 24 Ray Street, London EC1R 3DJ. Tel: 01 833 4909. Telex: 8954958.

therefore need some mains relays before you can operate mains devices – even if you wish to drive low-voltage motors and lamps, it's recommended that you use additional relays that can handle the current load for such devices. The input lines operate on 5-12v; 5v is available from connections on the cartridge. The enclosed manual gives you all the information you need to start using it, although a complete beginner might find it a little difficult to follow initially. The unit can be used with both the Vic-20 and the CBM 64; and at £34.95 it's an inexpensive way of experimenting with control I/O. The unit is available from most Commodore dealers or from **Handic Software,** *5 Albert Road, Crowthorne, Berks RG11 7LT – telephone 0344 778800.*

- **Basicare Microsystems** makes a modular expansion system for the CBM 64 which is intended to include **PERICON** modules (PERIpheral CONtrollers). The base units will plug into the expansion port and include many other expansion modules in addition to the controllers. Further details – like the price – will hopefully be available for inclusion later in the series; meanwhile Basicare can be contacted at *12 Rickett Street, London SW6 1RU – telephone 01-385 2135.*

- **Communicator** is an eight-channel I/O unit designed to work with PET computers; but it shouldn't be difficult (especially if you use a PET emulator program) to convert it to run on the CBM 64. It is a low-voltage (8-24v, 500mA per channel) device which can be connected to relays for mains control. The fully-built version costs £93.15 (inclusive of VAT and postage), the kit version costs £58.65. Available from **Mektronic Consultants,** *116 Rectory Lane, Prestwich, Manchester M25 5DB – telephone 061-798 0803.*

- **Scullion** is a complete mains control system with six mains sockets all mounted in a single unit. Facilities include the ability to vary the power to each socket as well as normal on/off operation. Two input lines are also included. The unit plugs into the User Port and comes complete with all necessary connectors. Although primarily designed for use with the Pet, the software could be easily amended to allow use with other Commodore machines. Cost is a rather hefty £261 (all inclusive); this one is also available from **Mektronic Consultants.**

- **GEM Systems** produces a **Mains Control System** at £69.95. No details had been received by the time we went to press; but again we'll try to include them later. Meanwhile, GEM can be contacted at **2 Crawford Road, Hatfield, Herts.**

```
10 REM ********************************
20 REM MAINS CONTROL PROGRAM (PART 1)
30 REM [FOR VIC-20]   BY CHRIS DURHAM
40 REM ********************************
45 IF PEEK(56)>30 THEN CM=37888:SM=4096:GOTO50
47 CM=38400:SM=7680:REM SET SCREEN & COLOUR MAP LOCS DEPENDING ON MEMORY
   SIZE
50 DEF FNF(X)=SM+397+(X*2):DEF FNN(X)=SM+441+(X*2)
60 POKE36879,25:POKE198,1
70 PRINT"<CLR><GRN><CD>MAINS CONTROL PROGRAM<BLU>"
80 PRINT"──────────────────────<CD>"
90 PRINT"TO USE MAINS DEVICES:"
100 PRINT"<CD>TYPE <RED>+<BLU> (ON) OR <RED>-<BLU> (OFF)FOLLOWED BY THE"
110 PRINT"DEVICE NUMBER (1-8)"
120 PRINT"<CD><RED>+2<BLU> TURNS ON  DEVICE 2"
130 PRINT"<RED>-2<BLU> TURNS OFF DEVICE 2"
140 PRINT"<CD>──────────────────────"
150 POKE37138,15:POKE37148,PEEK(37148)AND223:REM SET DDR AND CB2
160 REM ENSURE ALL OUTPUTS OFF AT START
180 FOR A=8 TO 15:POKE37136,A
190 FOR DL=1 TO 5:NEXT DL,A
200 POKE37148,PEEK(37148)OR32:REM LATCH OUTPUTS
210 GOSUB 1000:REM SET UP DISPLAY
220 REM START OF LOOP
230 GET A$:IF A$="" THEN 230
240 IF A$="─" THEN END:REM TYPE 'SHIFT E' TO END PROGRAM
250 IF A$<>"+" AND A$<>"-" THEN 230
260 GET B$:IF B$="" OR B$=A$ THEN 260
270 V=VAL(A$+B$):IF V=0 THEN 230
280 IF V<-8 OR V>8 THEN 230
290 IF V<0 THEN POKE37136,(ABS(V)-1)OR8
300 IF V>0 THEN POKE37136,V-1
310 POKE37148,PEEK(37148)AND223:REM ENABLE OUTPUT
320 FOR A=1 TO 5:NEXT A:REM DELAY
330 POKE37148,PEEK(37148)OR32:REM LATCH OUTPUT
340 IF V<0 THEN CN=32:CF=160:GOTO 360
350 CN=160:CF=32
360 POKEFNN(ABS(V)),CN:POKEFNF(ABS(V)),CF
370 GOTO 230:REM END OF LOOP
1000 PRINT"<BLK>DEVICE STATE INDICATOR";:PRINTSPC(2);
1010 FOR A=1 TO 8
1020 PRINTSTR$(A);
1030 POKE FNF(A),160
1040 POKECM+397+(A*2),2
1050 POKECM+441+(A*2),5
1060 NEXT A:PRINT
1070 RETURN

READY.
```

```
10 REM ********************************
20 REM MAINS CONTROL PROGRAM (PART 1)
30 REM [64 VERSION]   BY CHRIS DURHAM
40 REM ********************************
50 DEF FNF(X)=1790+(X*3):DEF FNN(X)=1870+(X*3)
60 POKE53281,15:POKE198,1
70 PRINT"<CLR><GRN><CD><CD>  MAINS CONTROLLER PROGRAM<BLU>"
80 PRINT"     ──────────────────────────<CD><CD>"
90 PRINT"      TO OPERATE MAINS DEVICES:"
100 PRINT"<CD>     TYPE <RED>+<BLU> (ON) OR <RED>-<BLU>
   (OFF) FOLLOWED"'
110 PRINT"       BY THE DEVICE NUMBER (1-8)"
120 PRINT"<CD> E.G. <RED>+2<BLU> TURNS ON  DEVICE NUMBER 2"
130 PRINT"       <RED>-2<BLU> TURNS OFF DEVICE NUMBER 2"
140 PRINT"<CD>──────────────────────────────────────"
150 POKE56579,15:POKE56578,4:REM SET DATA DIRN REGISTERS
160 REM ENSURE ALL OUTPUTS OFF AT START
170 POKE56576,PEEK(56576)AND251
180 FOR A=8 TO 15:POKE56577,A
190 FOR DL=1 TO 5:NEXT DL,A
200 POKE56576,PEEK(56576)OR4:REM LATCH OUTPUTS
210 GOSUB 1000:REM SET UP DISPLAY
220 REM START OF LOOP
230 GET A$:IF A$="" THEN 230
240 IF A$="─" THEN END:REM TYPE 'SHIFT E' TO END PROGRAM
250 IF A$<>"+" AND A$<>"-" THEN 230
260 GET B$:IF B$="" OR B$=A$ THEN 260
270 V=VAL(A$+B$):IF V=0 THEN 230
280 IF V<-8 OR V>8 THEN 230
290 IF V<0 THEN POKE56577,(ABS(V)-1)OR8
300 IF V>0 THEN POKE56577,V-1
310 POKE56576,PEEK(56576)AND251:REM ENABLE OUTPUT
320 FOR A=1 TO 5:NEXT A:REM DELAY
330 POKE56576,PEEK(56576)OR4:REM LATCH OUTPUT
340 IF V<0 THEN CN=32:CF=160:GOTO 360
350 CN=160:CF=32
360 POKEFNN(ABS(V)),CN:POKEFNF(ABS(V)),CF
370 GOTO 230:REM END OF LOOP
999 REM <GR1> BELOW IS CSHIFT + 4 (GRAY 1)
1000 PRINTSPC(9);"<GR1>DEVICE STATE INDICATOR":PRINTSPC(8);
1010 FOR A=1 TO 8
1020 PRINTA;
1030 POKE FNF(A),160
1040 POKE56062+(A*3),10
1050 POKE56142+(A*3),5
1060 NEXT A:PRINT
1070 RETURN

READY.
```



Components list

Resistors
R1, 2, 3, – 1KΩ

Capacitors
C1, 2, 3, 4 – 0.1µf

ICs
IC1 – 4514B
IC2, 3 – 4043B
IC4 – MM74HC240N*

Switches
SW1 – SPST Press Sw. (non-latching)
SW2 – SPST (or SP on/off)

Hardware
1 metre 16-way Ribbon cable
PCB materials
Vero Box 103 (Maplin code LL00A)
Ribbon cable clips
3-pin DIL sockets – Qty 4†
0.1" 10-way PCB plugs – Qty 2†
0.1" 10-way Socket Housing – Qty 1†
Minicon Terminals (for above) – Qty 10†
User Port connector†

*** obtainable (only by dealers) from: Farnell Electronic Components, Canal Road, Leeds LS12 2TU – telephone 0532 636311**
† as required



(SUPER-FAST LOADING TIME) commodore 64
electron
B.B.C. MICRO
MEMOTECH
FELIX
IN THE FACTORY
£6.95
(ELECTRON and BBC MICRO versions £7.95)
Race along the conveyor belt leaping the packages, and shin up the ladders to the shopfloor. Pitchfork the Gremlins off the walkways, use the poison pouch to trap the Giant Rat, and retrieve the oilcan to keep the generator topped up.
GENERATOR
COMMODORE 64 VERSION
OIL
RAT
I THINK YOU'LL FIND SWOOP, GHOULS AND CYBERTRON MISSION ARE WINNERS AS WELL!
MICRO POWER
MICRO POWER LTD., NORTHWOOD HOUSE, NORTH STREET, LEEDS LS7 2AA TEL: (0532) 458800
SELECTIVE BRANCHES OF BOOTS, CO-OP, MENZIES, W. H. SMITH, WOOLWORTHS AND ALL GOOD DEALERS.
AUTHORS! WE PAY 20% ROYALTIES!

Taskset *in profile*

The view from Bridlington

by Bohdan Buciak

Taskset is a relative newcomer to the make or break world of home computer games; it's been trading for little over one year. But its protagonists cut their teeth earlier than most by producing games for real arcade machines.

Now they've turned their collective attention exclusively to the Commodore 64 and have produced a string of eccentric yet original games that seem to pop up regularly in the games charts. Bohdan Buciak took the stopping train to sunny Bridlington to meet the creators of *Rankin' Rodney* and *Bozo*.



Andy Walker was born just down the road from Taskset's new premises on Bridlington High Street. He's managing director of that company, and probably falls into the local-boy-made-good category, whether he likes it or not. He's now in his mid-thirties, sports a Noel Edmunds hairstyle and beard, and has done time working as a civil servant. Not an environment conducive to promoting games-mania. So how did he get hooked on computer games?

"I spent a considerable number of years working with computers at a government electronics centre", he declares cautiously. That was a few years back, when microcomputers were just beginning to make their attack on the mainframe and minicomputer market.

Walker saw the potential immediately and became fascinated by micros to the point of distraction. But his enthusiasm couldn't persuade his superiors to send him on small systems courses to find out more about micros. Walker considered that to be somewhat shortsighted: "they didn't believe the future lay in small systems." So he built an antipathy towards the Civil Service and started building his own micros.

He eventually left, having decided that he wanted to do nothing more than devote his time to writing video games. He managed to inspire another programmer and a video artist with his own brand of enthusiasm and together they set up AWL Electronics, a company who's major claim to fame was writing games like *Andromeda* and *The Pit* for the true games arcade consoles.

From arcade to home

But nothing seems to last long in the computer games industry. "The writing was on the wall for arcades", recalls Walker. "People were ripping each other off blind, producing anything but original offerings. In any case, the growth market was in home computers – you can't put a keyboard in an arcade." By that he means the sophisticated game control you get from a keyboard couldn't be incorporated into an arcade machine – keyboards are a mite too delicate for arcade zappers.

Andy Walker's arcade experience told him that the two ingredients for success are spectacular graphics and good sound. But that wisdom left him with nowhere to go; a home computer that could do justice to those two requirements still hadn't appeared – as far as Walker was concerned, anyway. Maybe his standards were too high.

But he was immensely impressed when the Commodore 64 appeared on the scene; its sprite graphics and its VIC chip. "We bought a few 64s and took them apart, and found that the VIC chip does the same as a board-full of chips on an arcade console – what an awakening for me." Walker will, without hesitation, produce a circuit board the size of a drinks tray for anyone who doesn't believe him.

And his views haven't changed since: "the 64 really is the best value machine on the market. The technology you're buying for the money is terrific. The screen editor is terrific, too". Trouble is, Walker can't comment on its Basic; he doesn't know the language. But on the strength of what he saw, Walker adopted the 64 as his main machine.

So Taskset came into being (at a time when Jetpack had just appeared on the Spectrum), with a team of programmers nurtured in



THE BIGGEST RANGE YET

COMPUTER PRODUCTS

At Last !!
A truly proffesional design standard light pen drawing package. You really can draw accurate detail drawings quickly and easily using this superb 100% machine code software supported by an extensive and helpful manual. Built in architectural and electrical symbols with facilities to add an unlimited number of your own symbols eg: musical mathematical etc with others to come soon from Stack. Printing routines are included for CBM and Epson printers and custom drivers can be added. For fun, ten games for the pen are included in the pack together with two sample pictures. All supplied on two double sided tapes with instructions for transfer to disk operation. You really must see this to appreciate just how good it is.

NEWS SPOT

Lots of new releases, improved products and better prices
Don't miss fantastic light pen deals zap - proof joystick and autofire adaptor.

AVAILABLE FROM

Branches of:- W H Smith, Dixons, Menzies, Spectrum, Tesco, Makro, Greens at Debenhams and all good computer stores.

RETAIL PRICE LIST

Rifle	29.95	Vickit 3	
Pen	28.00	(Comprehensive Hi-Res System)	
Centronics	24.00	Cartridge	26.45
Centronics on disk	29.00	Vickit 4	
RS 232	33.00	(High Speed Cassette/M.C. Monitor)	
Disk Compiler & Key	39.95	Cartridge	26.45
Disk Compiler No Key	19.95	Vickit 5	
Tape Compiler	14.95	(For use with Vickit 4 - provides	
IEEE 488	60.00	Assembler facilities on Vic)	
Help Cart	25.00	Cartridge	26.45
Super Help Cart	35.00	Ram & Rom Carrier	9.20
Arrow Cart	26.00	C2N Dust Cover	1.75
Arrow Plus Cart	44.00	Vic 20/64 Dustcover	2.00
10 x C12 cass	5.00	1541 Dustcover	1.80
Analogue Joystick	15.00	1525 Dustcover	2.35
Zap Proof Joystick	7.95	1526 Dustcover	2.35
Auto Fire Adaptor	4.75		
Vickit 2			
(Programmers Aids/Hi-Res Commands)			
Cartridge	32.20		

Full range of Leads, Connectors Dustcovers etc Ex Stock at Very Competitive Prices.

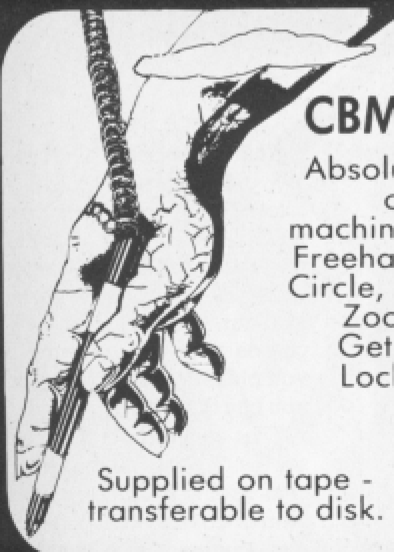
MAIL THIS COUPON NOW!!
To: **Stack Computer Services Ltd., FREEPOST, Bootle, Merseyside L20 0AB.**

I am interested in your accessories for:

- ☐ VIC-20
- ☐ CBM-64
- ☐ BBC'B'
- ☐ Dragon
- ☐ Atari

Name ____________________
Address ____________________
____
____

All prices include Vat.
Add p & p £1.90 free on orders over £25.00.



Light Pen CBM 64 or Vic 20*

Absolutely the best....see opposite–100% fast machine code Featuring:- Freehand draw, Nib size, Circle, Box, Fill, Line, Text, Zoom, Animation, Put, Get, Save, Load, Print, Lock X, Lock Y and 10 Games.

*needs 16k

Supplied on tape - transferable to disk.

£28.00

Stack Light Rifle



£29.95

A unique game system for Vic 20 or CBM 64. Load one of the three games included and shoot the cowboys, rats, convicts etc on your T.V. from up to 10ft away. Complete full colour and sound effects.



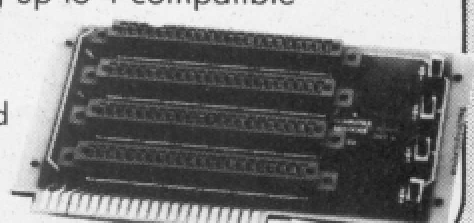
CBM 64 Compiler

Turns your normal basic programs into very fast machine language like code.

1. Disk Based with protection key 39.95
2. Disk Based with no key 19.95
3. Tape Based 14.95

4 SLOT Motherboard VIC 20 & CBM 64

A high quality switchcable expansion unit with gold slots enabling up to 4 compatible cartridges or RAM packs to be simultaneously inserted and turned on or off at will.



£38.00

CENTRONICS INTERFACE VIC 20/CBM 64

A very high quality strengthened cable (not flimsy ribbon) together with easy to use driver software on cassette (disk £5 extra) compatiable with Easyscript, Vizawrite, Simplywrite, Wordcraft and many others (but not all).

£24.00

RS 232 C INTERFACE CBM 64/VIC 20

A full Bi-directional interface for Printer, Plotter or modern connection. Provides standard D-type male connector compatible with any software which uses the serial port. Special cable service available if required. Full documentation.

£33.00



IEEE-488 VIC 20/ CBM 64

This cartridge provides the standard CBM connector and enables all 3000, 4000 and 8000 series disk drives and printers to work with the Vic 20 or CBM 64. Supports normal CBM 64 commands

£60.00

ARROW C64

A Cartridge Giving:-

- 7 times normal cassette speed for loading and saving
- Machine Language Monitor
- High Speed Tape positioning
- Hexadecimal Calculator

at **£26.00**



ARROW PLUS C64

All of the features of Arrow with the addition of Assembler and Disassembler facilities

at **£44**

HELP C64

This Cartridge is absolutley packed with terriffic routines and facilities:- 20 Additional Basic Commands, Printing Disassembler, Monitor, Disk Operating System Support,

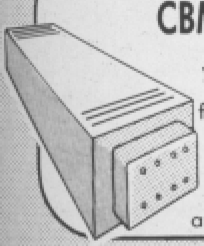
all for only **£25.00**

SUPER HELP C64

This Cartridge features all of the commands of Help with the addition of a Full Symbolic 2 Pass Asssembler

at only **£35.00**

AUTOFIRE ADAPTOR CBM 64/VIC 20

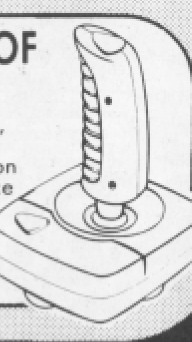


Connects between your joystick and the computer and gives full autofire facilities. Now you can really Zap-em

at **£4.75** inc Vat

ZAP - PROOF JOYSTICK

Almost unbeatable, rubber feet, 2 fire buttons, great action quickshot look alike

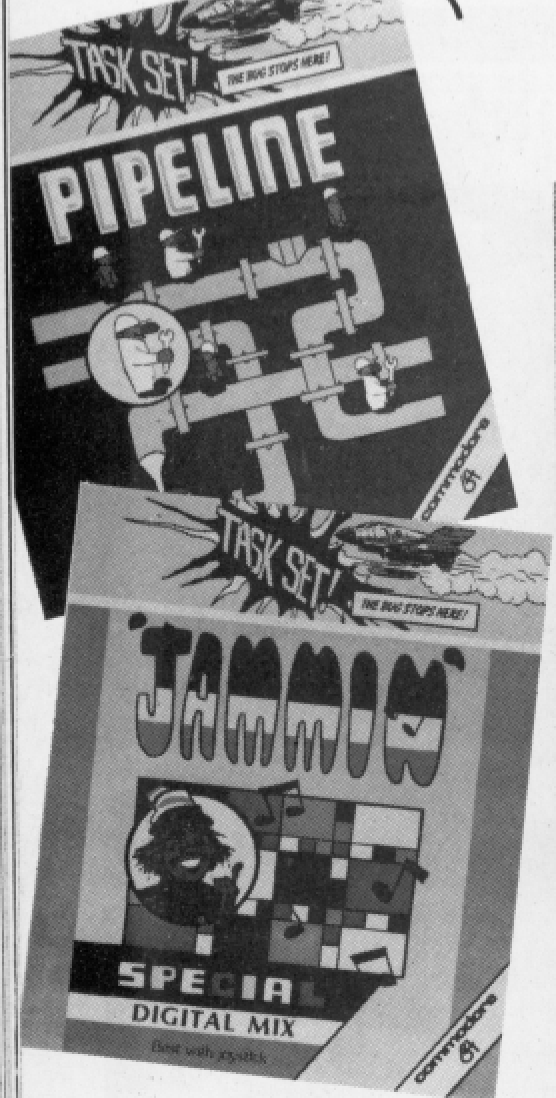


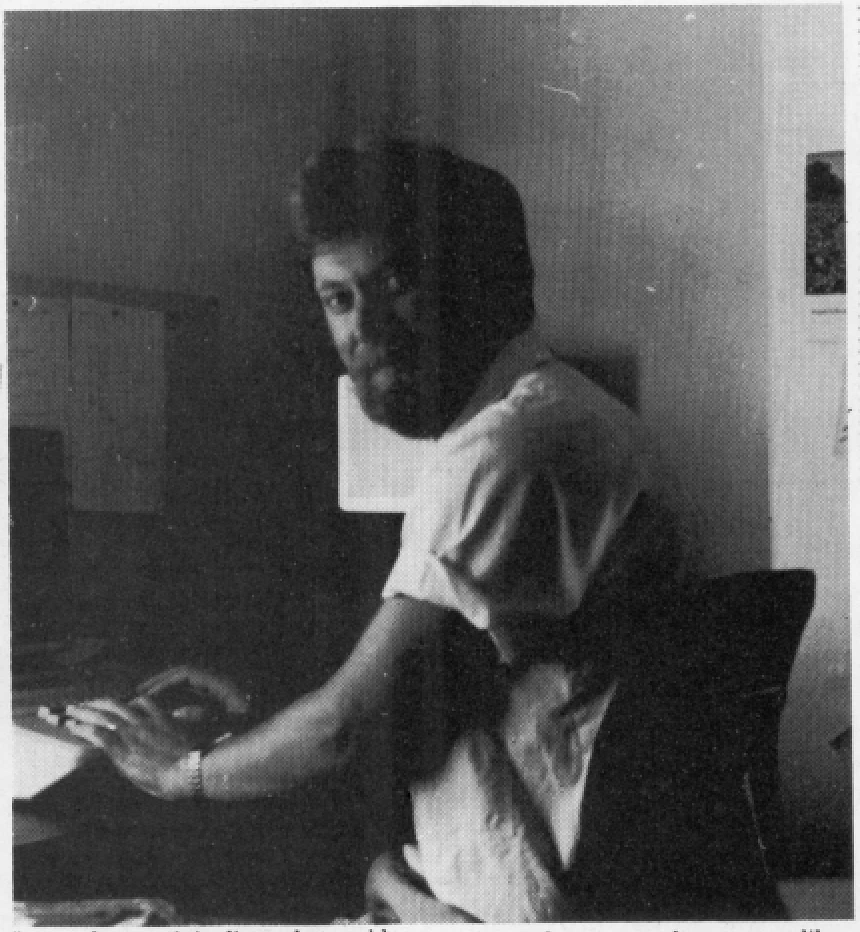
£7.95

STACK 100

CUSTOMER INFORMATION CENTRE
290 - 298 Derby Road,
Bootle, Liverpool L20 8LN
Trade enquiries: 051 933 5511
ask for 'Trade Sales'

COMPUTER PRODUCTS





arcade work, working for a machine they reckoned could display their talents to the full. But why choose an unusual name like Taskset? Simply because they needed to become a company quickly, so they bought a name off the shelf Walker felt it sounded reasonable.

Bags of ideas

Taskset didn't need to adapt its working routines to write for the Commodore 64; the team carried on originating games in their accustomed way. "We carried on operating what we call an ideas bag," explains Walker. The bag is actually a board hanging behind Walker's desk upon which people scribble their ideas. "We also run regular brain-storming sessions in which lots of weird and wonderful ideas get thrown around." But the casualty list seems high – "about one in every twenty ideas actually becomes a game".

And the real mainstay for Walker is originality; probably a hangover from his experience of arcade games, and something he'd really like Taskset to become known for. "You've got to be able to junk ideas, even if someone comes out with a game that you've already put a great deal of work into." Walker reckons he's already done that – probably not many other games houses could make the same claim.

And the theorising continues: "apart from originality, what we'd aim for in a game is relatively simple rules but a high standard of presentation. There's no reason why graphics shouldn't be good and music shouldn't keep tempo with the action."

And do Taskset's games live up to all those aims? On *Cosmic Convoy*, its first game, Walker has doubts. The most he'll say about it is that it was an original offering. But he'll really wax lyrical when pressed about *Pipeline* and *Jammin'*, both of which have been remarkably successful.

"*Pipeline* came out of an ideas bag we had when we were still writing for the arcades. We'd had a burst pipe at the office one night, dripping water perilously near to some expensive hardware. The plumbers came next morning, and it developed into a really crazy situation – workmen galore, one guy holding a spanner while three others watched." So the idea went into the bag and eventually surfaced, albeit a little transformed.

"It's a simple game, but it was a long way advanced over its competitors, especially in terms of music", enthuses Walker. He plays the game almost reverently: "so simple, the idea is to engender panic; you can win if you keep your head, not many people get past pipe ten..."

Rodney and Bozo

Pipeline set the trend for a succession of games characters, like Rankin' Rodney in *Jammin'*. That game stemmed from Tony Gibson, Taskset's reggae-loving musician, who hero-worships the late Bob Marley – hence the game's strong red, gold and green colours.

Walker probably reveres that game even more: "nobody had driven the 64's sound chip like that before. *Jammin'* has a drum, bass and melody line; and it all keeps time with the action; it's truely interactive. There's no killing involved either, just collecting instruments so that they'll play to you. And the baddies are just bum notes."

Whether you like the game or not, there's no denying that both the music and graphics are brilliant. The tunes either obsess you or drive you mad.

Then came Bozo, the unsteady anti-hero of *Bozo's Night Out*. That's Taskset's most original and bizarre offering to date. But games that include a drunk, a bunch of muggers and sweet painted ladies will inevitably offend somebody somewhere.

Walker is quick with his defence: "Bozo is a reasonable idea. And I don't think there's anything to alienate youngsters. Alcohol is never mentioned – it's wobble-juice. An awful lot was cut out so as not to be offensive". One idea that didn't quite make it was a bladder that would fill up as Bozo drank, the problem of emptying it proved unsurmountable – probably a mixed blessing.

That prompts Walker to risk a few generalisations. Like, "there's a lot of arguements for us writing what we want. For example, we'd write a political game whether it offended a political party or not. We are our own masters. We back games with our own money, and you please yourself whether or not you buy them."

That assertion of independence seems to pervade the writing process itself. "We never advertise for games contributions and we don't buy anything in. If a game is not written here, it doesn't get published."

And writing itself is always done as a team. "I'm not saying individuals aren't important," asserts Walker. "It's just that the process is too big for individuals. The best way forward for Taskset is to gather a team of specialists; everybody is good at what they do."

Getting to the chips

Having decided to use an idea, what are the mechanics of writing a game? Walker quickly asserts that all writing is done in machine code and nothing else. "I don't like anything getting between me and the chips." He doesn't know Basic anyway – and probably doesn't want to.

To make the writing process easier, Taskset has invested heavily in development hardware. Such as the Apple II micros (they run with the 6502 processor similar to the 64's) they use as development machines, running the Merlin assembler package. Then there's the Omninet local area network. That connects the input/output ports of all the Apples, enabling them not only to transfer programs and data to each other but to share a 10 megabyte Winchester hard disk, which stores all the work done and can be accessed by anyone on the network.

Not only that, Taskset has spent a great deal of time writing its own utilities. "We couldn't buy the utilities we wanted so we wrote them ourselves; they all link together. We've written a compact machine-code monitor too." Another example of that much-prized independence?

More recently, Taskset discovered the *Koala Pad* graphics tablet and is now using it to generate graphics, having written their own utilities for it. "The impact has been enormous," enthuses Walker. "We can generate in a day what would have taken a week to complete. That means we can afford to experiment with ideas much more."

Walker insists that the new utilities won't make Taskset pro-

risk a
here's
writing
, we'd
r it of-
ot. We
back
, and
or not

dence
g pro-
ise for
don't
is not
pub-

done
ividu-
sserts
cess is
best
is to
every-

OS

idea,
writing
asserts
achine
n't like
ne and
Basic
doesn't

rocess
heav-
. Such
ey run
ilar to
pment
lin as-
e's the
. That
orts of
em not
d data
a 10
disk,
ne and
on the

spent
ts own
y the
wrote
nk to-
mpact
too."
much-

disco-
cs tab-
nerate
ir own
s been
. "We
would
nplete.
exper-

new
et pro-



duce games more quickly. "We can't produce games quickly because we're a small company, and machine code won't rush. We don't want to either; I don't want Taskset to become a big conglomerate. We're staying small so that we can all be Indians." by that he probably means everybody stays a part of the team and gets equal shares in the glory.

But Taskset has grown despite these assertions, and Walker has taken on an accountant and a marketing man, suitably called Andy Nutter, to allow him to do what he enjoys – write games. And probably to shirk the mundane yet essential job of administration.

Computer games is now big business, no longer the cottage industry of yore. And Walker won't hesitate to stress the importance of good management, especially when bankruptcy casualties among software houses are becoming uncomfortably regular. But he'll claim immaturity as the main cause of a company's demise rather than the activities of organised games counterfeiters.

"I don't think piracy is responsible for any software house's downfall. We've been badly hit too. And we're doing something about it. I hate it because it involves me in a lot of work and money, and that offends me." What he's doing is embarking on a long and tortuous period of legal action. Taskset could join the Guild of Software Houses and take joint action. But Walker hasn't got round to it. "It's just not the all-important problem."

Making plans

With the future of some software houses being abruptly curtailed, what kind of plans has Walker made for Taskset? "We have to be international in our outlook. It's no good being in just one country. You've got to be in Europe, which means providing games on disk because the disk market is much bigger there. We've also got links with America from the old days, which we're using to good effect."

America is probably a thorn in the side to many British games houses as American software sells rather well in this country. Walker asserts it doesn't bother him: "it was bound to happen. The games are generally of very good quality and it's good healthy competition. So we can only welcome a move like that. The real winners are the customers. They're getting a colossally good deal."

Time for some more home-spun Walker philosophy. "Customers have a lot of power. If only they'd realise it. Thay have the power to make or break software houses. For example, if people don't like *Bozo*, it would put them off everything else we do." And inverting that theorem, *Bozo* fans will invariably turn to Taskset for future games.

So Taskset is determined not to produce inferior games. It's all a question of credibility. Or, as Walker puts it: "we want to be known for original entertainment, and I'm quite happy with that as my major aim. We're not interested in business or utility software. We write games and we think we're good at it."

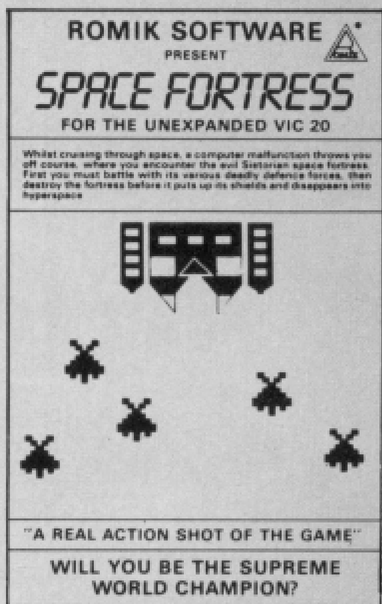
But will Taskset's future games continue to be exclusively for the Commodore 64? After all, Commodore has just announced the 16 and Plus 4 models. Does Walker regard those as true gaming machines? The answer is characteristically abrupt. "I won't even look at the 16, and with the Plus 4, the answer's a qualified 'no'. It's got no sprites and they've thrown away the SID chip. It's madness and a big step back for the gaming world. Neither of them will sell better than the 64. And the 64 will be around for a long time. Commodore couldn't kill off the demand if they wanted to."

Certainly, software houses continue to churn out innumerable games for the 64. Taskset doesn't work quite that quickly but it is currently launching two new games. The first, *Poster Painter*, involves a character called Bill Stickers. And if *Bozo* reminded you of a character from a seaside postcard, you won't be surprised that the second game is called *Seaside Special* – must be something in the Bridlington air.

Our regular round-up of games reviews

We get to see a lot of games here at Commodore User, so many in fact that we can't handle all the reviewing ourselves – we farm out some of them, which is why our reviews have someone's initials at the end of them. We look at everything we get, but we don't necessarily print all the reviews we write: instead, we tend to stick with (a) all the best games we come across and (b) those games that you're most likely to find in the shops or the mail order ads.

Screen Scene



SPACE FORTRESS
Vic-20 (unexpanded)
Joystick or keyboard
Price £5.99

You are a space games fan with a basic Vic looking for some real action: *Space Fortress* is certainly a good "shoot-em-up" requiring timing, together with an awareness and anticipation of the enemy's tricky flight paths. There are four waves: the green suicide squad; blue sidewinders (these and the following drop bombs); cyan swoopers and lastly, purple avengers.

Each formation attacks in a different manner in an effort to relieve you of a life. Your demise is marked by effective "thumping" sonics standing out from the background noise of cosmic wind. The high point is obviously the appearance of the eponymous "awesome mothership": Scrunch it quickly, before the force field has a chance to knit, then take the next step towards level 20. *LS*

Romik

Presentation:	■■■■□
Skill level:	■■■□□
Interest:	■■■■□
Value for money:	■■■■□

ALPHOIDS
Vic-20 (unexpanded)
Joystick or keyboard
Price £5.99

Obviously related to *Centipede* but with sufficient innovations to distance itself from the typical cover jobs. A cyan segmented space worm is wending it's way towards you, with green meanies for company: as your laser chops up the worm, slices of it become detached and pursue independent courses. Green and purple cosmic toadstools remain in the spots where you scored hits, taking several more shots to be finally disintegrated. Wipe either form of adversary from the black sky and they spring back more numerous than ever.

A spinning fuel tanker crosses the top of the screen spilling acid rain; hit this ship to gain extra fuel. Apart from maintaining the energy levels you will also need to ensure that your laser tubes don't overheat; to advise you on both critical requirements there are guages on either side of the screen. To do well you will have to balance the need for warding off aliens and collecting fuel against resting-up your weapons systems, much as

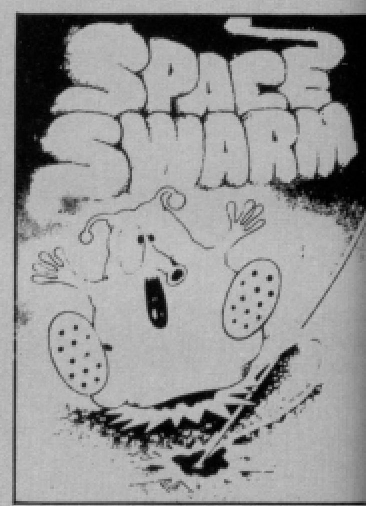


you might enjoy executing endless banana shots as allowed for by the program.

Plenty to do in this action packed space battle with very good use of colour and excellent sound, that's if you like the "Star Wars" theme. *LS*

Romik

Presentation:	■■■■■
Skill level:	■■■□□
Interest:	■■■■□
Value for money:	■■■■■



SPACE SWARM
Vic-20 (unexpanded)
Joystick only
Price £5.95

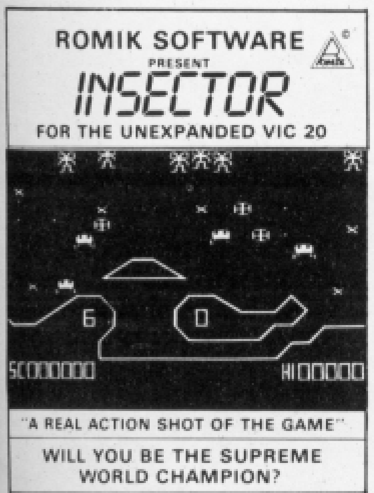
This is a pale shadow of *Arcadia*, although at least the playing area is wider and the top five scores are retained. The vertically expanded screen displays the countdown which must be survived by your largish green spaceship before the next wave is summoned up.

The first three opponents are alien craft with a tendency to drop bombs and *do* present a challenge, but the so-called fireballs in wave four are non-evident. Not so the meteors on the fifth frame, as they race in at all angles, calling for constant evasive action. After that it's round again but with your opponents having undergone a popular explosion. Unlike *Arcadia* you cannot move vertically; also your rocket slows down towards the end of each phase thereby increasing the likelihood of a collision.

Again compared to big A the alien forms are dull (sorry chaps). More carping; is the insert supposed to illustrate the game (remotely) and who conjured up the sonics? In isolation not bad but *Space Swarm* really does suffer by comparison to an established best seller. *LS*

Software Projects

Presentation:	■■■□□
Skill level:	■■■□□
Interest:	■■■□□
Value for money:	■■■□□



INSECTOR
Vic-20 (unexpanded)
Joystick only
Price £5.99

An adaptation of *Defender* which will only prove suitable for those able to cope with ultra hectic everything-happening-everywhere-simultaneously scenarios. A black horizontally expanded screen (the Vic can still teach the 64 a trick or two!) at first displays two yellow, bomb dropping mega-insects, just out of range of your red wedge-shaped interceptor soon to stalwartly defend the purple humans cowering in their burrows.

Only two? Yes but as the green landers scoop up specimens of homo-sapiens and, perchance evading your withering laser fire, reach the top of the screen they will mutate to increase the insects' numbers. Soon yellow pods will appear, despatched by the insects, only to engender cyan spreaders which vastly increase the shower of bombs raining from above; in fact there comes a time when the picture resembles a technicolour snow storm.

After a few trial runs, you get down to business, the addictive quality of the game will dawn on you ... simply this ... surely you can contain the situation without the whole thing careering beyond your control.. next time.

Comprehensive instructions precede the main program which features sixteen speed levels, thumping, pulsating noises, "howling" wind effects and an interesting screen display. If you fancy a challenge demand a demo of *Insector*.

LS

Romik

Presentation:	■■■■□
Skill level:	■■■■□
Interest:	■■■■□
Value for money:	■■■■□

FALCON FIGHTER
Vic-20 (unexpanded)
Joystick or keyboard
Price £6.00

A horribly addictive example of *Skramble* adapted for a spartan 3.5K. I managed five stages at speed 1 (choice of four speeds) and was unable to detect any flickering often associated with scrolling landscapes on the Vic. The border changes colour to match that of the sector, which makes things easy on the eye and sets off the white flight area nicely.

SCREEN SCENE

The first stage, green mountains, gives the opportunity to bag a few ground targets and gain practice in avoiding the omnipresent multi-colour space mines. The blue cavern provides the challenge of purple meteors; then out in the open again, red signals the presence of missiles. Sector four, purple, is well peppered with bobbing saucers, while another blue cavern (still with mines) revamps the tricky missiles. That leaves three sectors unexplored, but I'm willing to bet there is no maze.

The explosions are audial only, unless you count rapidly alternating screen colours; there is no debris. The high decibel background noises are supplemented by "plumeting bomb" sounds and the occasional bell as your rocket collides with obstacles.

Apart from stocking-up with fuel in the time honoured manner, ammo dumps have to be blasted for a supply of bombs; run out of these and you will most decidly be in a *Catch 22* situation.

LS

Interceptor

Presentation:	■■■■□
Skill level:	■■■■□
Interest:	■■■■□
Value for money:	■■■■■

gs become.



Will you think the same of your micro in 6 months' time?

Remember the days when every record player was gifted with a needle instead of a stylus. 45's were "in," 78's were "out."

Before the days of hi-fi and laser discs. When a graphic equaliser was a break-through on the football pitch instead of in music technology.

Look at a record player now and it's a museum piece.

It's like that with micros too. The machine you thought would give endless hours of fun and interest often becomes a five minute wonder. Played out within months. Or so you thought.

But imagine communicating with other micro users on a nationwide mainframe system. Updating yourself daily with the very latest computer news and reviews. Paging a special Bulletin Board. Feasting from ™Prestel's vast menu. Even downloading a choice of software *absolutely free.*

In fact, imagine 30,000 pages at your fingertips and you've imagined what it's like to be on line with the Micronet 800 system.

For Just £13 a quarter (and, for most of you, a local telephone call when-ever you want to connect up) you could subscribe to the Micronet system.

The only extra you need to connect up is a modem unit. Which is a small enough outlay for what it buys.

Micronet's features are almost limit-less and constantly updating so why not see it in action at John Lewis stores, selected W. H. Smith shops and Spectrum UK dealers.

Or fill in the coupon for our brochure.

You'll find you won't want to play on anything else.



Please send me the full facts about Micronet 800.

Name ________

Make/Model of Micro ________

Address ________

Telephone ________

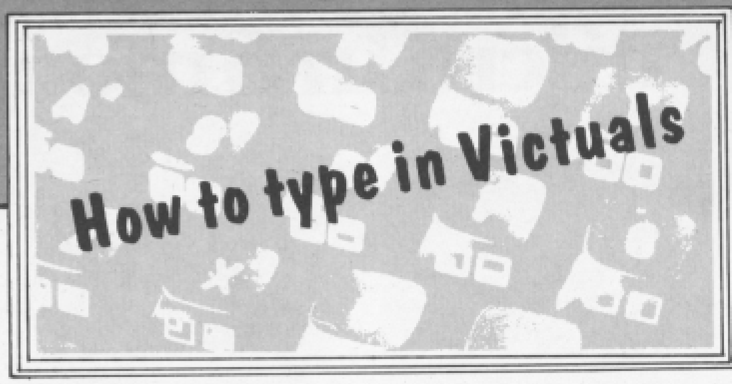
MICRONET 800, Durrant House, 8 Herbal Hill, London EC1R 5EJ. Telephone 01-278 3143

CC 9/84

MICRONET 800, Durrant House, 8 Herbal Hill, London EC1R 5EJ. Telephone 01-278 3143.

™Prestel and the Prestel symbol are trademarks of British Telecommunications

Making the most of your micro.



How we reproduce listings

We have two methods of presenting listings. When we can, we run them through a converter program that replaces the hieroglyphic control codes with more meaningful symbols.

When you see...	It means ...	And you ...
[CU]	*cursor up*	press the 'cursor up' key (shifted)
[CD]	*cursor down*	press the 'cursor down' key
[CL]	*cursor left*	press the 'cursor left' key (shifted)
[CR]	*cursor right*	press the 'cursor right' key
[HOM]	*cursor to the top lefthand corner*	press the HOME key
[CLS]	*clear*	press the CLR key (shifted)
[DEF]	*insert*	press the INSert key (shifted)
[BLK]	*change to black*	press the BLK key (CTRL and 1)
[WHT]	*change to white*	press the WHT key (CTRL and 2)
[RED]	*change to red*	press the RED key (CTRL and 3)
[CYN]	*change to cyan*	press the CYN key (CTRL and 4)
[PUR]	*change to purple*	press the PUR key (CTRL and 5)
[GRN]	*change to green*	press the GRN key (CTRL and 6)
[BLU]	*change to blue*	press the BLU key (CTRL and 7)
[YEL]	*change to yellow*	press the YEL key (CTRL and 8)
[REV]	*reverse on*	press the RVS ON key (CTRL and 9)
[OFF]	*reverse off*	press the RVS OFF key (CTRL and 0)
[SPC]	*space*	press the space bar; repeat the specified number of times

[G<key]	**press specified key together with CBM key**
[G>key]	**press specified key together with SHIFT key**

When you see any of these codes prefixed by a number, you must press the appropriate key the same number of times:

for example: **[3SPC]** means – press the spacebar three times
or

[5CD] means – press the 'cursor down' key five times

These listings we generally run out on a letter-quality printer, though, and conventional graphics can't be handled on a daisywheel. So some listings are done on a Commodore printer, in which case you may see the standard control codes:

```
CLR             ...   ■   (REVERSED HEART)
HOME            ...   ■   (REVERSED S)
RVS ON          ...   ■   (REVERSED R)
RVS OFF         ...   ■   (REVERSED UNDERSCORE)
CURSOR UP       ...   □   (REVERSED SHIFTED ●)
CURSOR DOWN     ...   ■   (REVERSED Q)
CURSOR LEFT     ...   ■  (REVERSED UPWARD BAR - SHIFTED H)
CURSOR RIGHT    ...   ■  (REVERSED LEFT SQUARE BRACKET)

SET COLOUR TO
         BLACK  ...    ■   (REVERSED SHIFTED P)
         WHITE  ...    ■   (REVERSED E)
         RED       ... ■   (REVERSED £)
         CYAN   ...    ◣   (REVERSED COMMODORE-SHIFTED *)
         PURPLE ...    ■   (REVERSED COMMODORE-SHIFTED -)
         GREEN  ...    ■   (REVERSED UP ARROW)
         BLUE   ...    ■   (REVERSED LEFT ARROW)
         YELLOW ...    ■   (REVERSED PI SIGN)
THE FUNCTION KEYS CAN BE INCORPORATED INTO PRINT STATEMENTS TOO.
AS WITH THE OTHER NON-ALPHANUMERIC KEYS, THEY APPEAR AS SPECIAL"

SYMBOLS IN A LISTING
F1   ... ■                        F2   ... ■
F3   ... ■                        F4   ... ■
F5   ... ■                        F6   ... ■
F7   ... ■                        F8   ... ■
```

And now for something completely useful...
...and different for the COMMODORE 64



QUADRILLION

from the producers of classic games such as HUSTLER, EXTERMINATOR, BUMPING BUGGIES, comes a collection, *ON DISK* of four excellent *UTILITY* programs.

WORD WIZARD represents real value for money word processing. Features include: Insert and Delete Lines, Copy Block, Move Block, Tabs etc, Save to Tape or Disk.

LABEL PRINTER Store all those important addresses or any other information, and recall them selectively to print.

POSTER PRINTER Now you can print with special large characters. Ideal for: Sales Offers, Club News, Notices, etc.

ADVERTISER Turns your Commodore 64 into a moving, musical message display. You may enter any message up to 959 characters and save it on disk.

ONLY £14.95 *ON DISK*

bubble bus software

87 High Street, Tonbridge
Kent TN9 1RX
Telephone: 0732 355962
Telex: 95151

Available from all good software outlets or direct from Bubble Bus Software.

Hi-res Plot

by Jason Dobbs

This neat little program allows you to use a joystick to draw on a cut-down 152 by 160 hi-res screen, and produce a printout of your work. But you'll need at least 8K of expansion for your Vic. According to Jason Dobbs, the program works well with the Commodore 1515 printer but it should also work with newer Commodore printers.

Because the pixel on the screen is rectangular rather than square, the printout is usually a little longer than the picture on the screen.

To run the program, you must put the start of Basic memory to 8192. That's not too difficult, you merely enter:

POKE44,32: POKE8192,0: NEW (return)

before you load the program itself. The program takes a little time to initialise, but you should eventually see a blue screen, a green border and a yellow cursor position. If those colour combinations don't please you, they can be altered by changing the values in Lines 20 and 1005. In both cases, you need to change the number immediately preceeding the last colon.

To operate the program, you use the joystick. A few special keys are used too:

- 'P' lets you print your design
- 'CLR' is used to clear the screen (be patient, it takes a little time)
- Keys from 1 to 9 are used to change the amount the cursor moves in one step
- F1 draws a line between the spot where F1 was pressed and the spot where you pressed the fire button. Pressing the fire button in the same way, but without pressing F1 rubs out rather than draws

```
10 DIMA$(23):PRINT"[CLS]":POKE36867,149:POKE36869,205:POKE36866,19:POKE36865,44:
POKE36864,14
20 FORT=0TO191:POKE4096+T,T:POKE37888+T,7:NEXT
30 GOSUB1000:F=1
50 WW=1:GETA$:IFA$=""THEN100
60 IFA$="P"THENGOSUB1100:GOTO50
70 IFA$=CHR$(19)THENGOSUB1000:GOTO50
80 IFA$=CHR$(133)THENX1=X:Y1=Y:GOTO150
90 IFVAL(A$)>0THENF=VAL(A$)
100 A=PEEK(37137):POKE37154,127:B=PEEK(37152):POKE37154,255:IF(AAND32)=0THENWW=-
2
110 X=X+(FAND(BAND128)=0)-(FAND(AAND16)=0):Y=Y+(FAND([illegible]AND8)=0)-(FAND(AAND4)=0)
12ℓ GOSUB1010:GOTO50
150 WW=-2:A=PEEK(37137):POKE37154,127:B=PEEK(37152):POKE37154,255:IF(AAND32)=0TH
EN180
160 X=X+(FAND(BAND128)=0)-(FAND(AAND16)=0):Y=Y+(FAND(AAND8)=0)-(FAND(AAND4)=0)
165 GETA$:IFVAL(A$)>0THENF=VAL(A$)
170 GOSUB1010:GOTO130
180 WW=0:X2=X:Y2=Y:IFX1-X2=0THENFORY=Y1TOY2STEPSGN(Y2-Y1):GOSUB1010:NEXTY:GOTO50
185 G=(Y1-Y2)/(X1-X2):IFX2-X1<0THENG=-G
190 FORX=X1TOX2STEPSGN(X2-X1):FORY=Y1TOY1+GSTEPSGN(G):GOSUB1010:IFY=Y2ANDX=X2THE
NY=Y1+G
210 NEXTY:Y1=Y1+G:NEXTX:Y=Y2:X=X2:GOTO50
1000 FORT=5120TO8160:POKET,0:NEXT:A$(1)="":FORT=1TO160:A$(1)=A$(1)+CHR$(128):NEX
TT
1005 FORT=2TO23:A$(T)=A$(1):NEXTT:POKE36879,8:FORT=1T[illegible]100:NEXTT:POKE36879,239:RE
TURN
1010 X=INT(X):Y=INT(Y):IFX<1THENX=1
1020 IFX>151THENX=151
'930 IFY<1THENY=1
1040 IFY>159THENY=159
1050 U=INT(Y/16):V=INT(X/8):S=19*U+V:R=YAND15:C=XAND7:M=5120+16*S
1055 POKEM+R,2↑(7-C)ORPEEK(M+R)
1060 A=INT((Y/7)-.01):A=A+1:W$=MID$(A$(A),X,1):W=ASC(W$)
1070 B=2↑((Y-7*(A-1))-1):W=WORB:IFWW=-2THENW=W-B:POKEM+R,PEEK(M+R)-2↑(7-C)
1080 N$=LEFT$(A$(A),X-1):N$=N$+CHR$(W):A$(A)=N$+RIGHT$(A$(A),LEN(A$(A))-X)
1090 RETURN
1100 CLOSE1:OPEN1,4:FORT=1TO23:PRINT#1,CHR$(8)A$(T):NEXTT:RETURN

READY.
```

Escape

by Rupert Willard

Don't be fooled by this title, this is a version of that screen classic and hardy perennial game, *Breakout*, for the unexpanded Vic. Of course, it doesn't incorporate the intricacies of play you'd expect from the original. And it ends as soon as you've broken out at the top of the screen.

But there are some nice touches: like the authentic pinging sounds, a high-score facility, choice of up to nine serves and the full quota of six barriers to bust through. Pressing 'Z' moves the paddle to the left, and 'C' to the right.




```
5 PRINT"[CLS][WHT]":POKE36879,9
6 PRINT" THIS IS A GAME OF"
7 PRINT"[4SPC][REV][WHT] ESCAPE [OFF]":PRINT:PRINT"THE Z[G>C]KEY MOVES LEFT":PRI
NT"THE C[G>C]KEY MOVES RIGHT"
9 PRINT"YOU MAY CHOOSE THE":PRINT"[CD]NUMBER OF CHANCES":POKE198,0
10 INPUT"[CD]YOU WANT:";C
11 IFC<1ORC>9THENGOTO10:E=C
14 PRINT:PRINT" HIT ANY KEY TO PLAY"
16 GETA$:IFA$<>""THEN16
17 GETA$:IFA$=""THEN17
18 POKE36878,15:Y=20:DY=-1:GOSUB1000:PRINT"[CLS]"
19 FORJ=2TO7
20 FORI=0TO20
30 POKE38444+I+(J-2)*22,J
40 NEXTI:NEXTJ
50 FORI=0TO131
60 POKE7724+I,160
70 NEXTI
75 POKE7680+X+22*Y,81
80 POKE8142+D,98
90 POKE8143+D,98
95 PRINT"[HOM]SCORE:";SC
97 PRINT"[HOM][14CR]LIVES=";C
100 POKE8144+D,98
110 S=PEEK(197)
140 IFS=33THEND=D-1:POKE8145+D,32
150 IFS=34THEND=D+1:POKE8141+D,32
160 IFD<0THEND=0
170 IFD>19THEND=19
180 POKE 7680+X+22*Y,32
190 X=X+DX
200 IFX<1ORX>20THENDX=-DX:POKE36876,220
210 Y=Y+DY
220 IFY=22THEN300
225 IFY=0THEN400
230 IFPEEK(7658+X+22*Y)=160ANDDY=-1THENDY=1:POKE36876,230:POKE7658+X+22*Y,32:SC=
SC+12
240 IFPEEK(7702+X+22*Y)=98THENDY=-1:POKE36876,240
250 POKE36876,0
260 GOTO75
300 POKE36874,140
310 FORI=0TO1000:NEXT
320 POKE36874,0
330 C=C-1
340 PRINT"[HOM][11CD][CR]YOU HAVE ";C;"CHANCES[6SPC]LEFT"
343 FORT=0TO1500:NEXT
345 FORK=0TO34:POKE7922+K,32:NEXT
350 IFC>0THEN Y=20:DY=-1:GOSUB1000:GOTO75
355 GOTO460
400 FORU=0TO5
410 POKE36875,240
420 FORI=1TO90:NEXTI
430 POKE36875,0
440 NEXT
450 POKE36878,15:POKE36876,250:FORT=1TO100:NEXT:POKE36876,200:FORT=1TO100:NEXT
451 POKE36876,0:GOTO14
460 POKE36878,0
470 POKE36879,42:PRINT"[CLS][WHT]"
475 PRINT"[6CD]YOU SCORED:";SC
478 IFSC>HSTHENHS=SC
480 PRINT"[2CD]THE HI-SCORE FOR":PRINT"TODAY IS:";HS:SC=0
495 FORT=1TO4000:NEXT
500 GOTO5
1000 X=INT(RND(1)*20)+1
1010 DX=INT(RND(1)*3)-1
1020 IFDX=0THEN1010
1030 RETURN

READY.
```

Three scrolls for the Vic

by Neil Phillips

Ever wondered how professional programmers produce those dazzling scrolling effects? Neil Phillips reveals all with these three short routines.

Horizontal scroll makes a single line of text move across the screen. Vertical scroll does the same, but this time it's up and down. Finally, there's a routine to scroll the whole screen towards the top. Happy scrolling.

Vertical scroll

```
1 A$="[BLK]THIS IS AN EXAMPLE OF A VERY SIMPLE WAY TO ADD VARIETY TO YOUR PROGRA
MS WITH "
2 B$="VERTICAL SCROLLING.[2SPC]"
3 C$="[RED]IT COULD EASILY BE INCORPORATED INTO A PROGRAM AS A SUBROUTINE.[2SPC]
"
4 D$="[BLU]IT ALSO USES VERY LITTLE MEMORY.[2SPC][YEL]TRY YOUR OWN MESSAGE![23SP
C][BLU]"
5 A$=A$+B$+C$+D$
10 PRINT"[CLS][19CD]"
20 FORN=1TOLEN(A$)
30 PRINTTAB(11)MID$(A$,N,1)
40 FORT=1TO175:NEXT
50 NEXTN
60 FORK=1TO500:NEXT:PRINT"[CLS]":LIST10-50:CLR:END

READY.
```

Horizontal scroll

```
10 PRINT"[CLS][CD][8CR][RED][REV]SCROLL[3CD]"
20 PRINT"[BLK][3CR]BY NEIL PHILLIPS[6CD]"
30 BL$="[19SPC]"
40 A$="[BLU]THIS IS AN EXAMPLE OF A VERY SIMPLE WAY TO ADD VARIETY TO YOUR PROGR
AMS WITH "
50 B$="HORIZONTAL SCROLLING.[2SPC][GRN]IT COULD EASILY BE INCORPORATED INTO A PR
OGRAM AS A "
60 C$="SUBROUTINE, [PUR]USING VERY LITTLE MEMORY.[2SPC][YEL]TRY YOUR OWN MESSAGE
!"
70 A$=BL$+A$+B$+C$+BL$
80 FORI=1TOLEN(A$)
90 PRINTTAB(2)MID$(A$,I,18)
100 PRINT"[2CU]"
110 FORK=1TO150:NEXT
120 NEXT
125 PRINT"[5CU][BLU]"
130 LIST70-120:CLR:END

READY.
```

Screen scroll

```
20 V=36878:N1=36874:N2=36875:S=36879:M=36865
30 POKES,25:POKEM,134:POKEV,15:POKEN1,198:POKEN2,142
40 PRINT"[CLS]"SPC(1)"[BLU]A SIMPLE VIC SCROLL"
50 PRINTSPC(8)"[BLK]FROM"
60 PRINTSPC(4)"[CD][RED]NEIL PHILLIPS[BLU]"
70 FORT=1TO500:NEXT:FORA=128TO65STEP-1:POKEM,A:FORB=1TO45:NEXTB,A
75 POKEV,0:FORT=1TO1500:NEXT:POKEV,15
80 FORA=65TO0STEP-1:POKEM,A:FORB=1TO45:NEXTB,A:FORT=1TO900:NEXT
90 PRINT"[CLS]":POKEM,25
100 POKES,27:POKEN1,0:POKEN2,0:POKEV,0:CLR:END

READY.
```

Turning tortoises into hares

The 1541 Express cartridge reviewed

by Kevin Bergin

The Commodore 1541 disk drive has an unhealthy reputation for sluggishness, to the extent that cassettes with a 'Turbo' facility load just as quickly as disks. And there's nothing you can do about it.

Well, not quite. Now you can buy the 1541 Express cartridge from Ram Electronics. It connects computer and disk drive via the 64's cartridge port, and claims to let you load and save files from the 1541 at more than double the normal speed. That sounds pretty impressive but is it impressive enough to warrant its hefty £49.95 price-tag?

What you get

For your money you are supplied with a cartridge that plugs into the the 64's cartridge port. And there's a short eight-page manual to help you install and use your new device.

But before you can use the 1541 Express you must face the somewhat daunting prospect of connecting two wires which are attached to the cartridge, to two chips inside the 64. This means that you must take the lid off the 64 and this could affect the warranty, so be warned.

The two wires that dangle from the cartridge are labelled **6510** and **U14**. These are the names of the chips that the wires must be connected to. Both wires have a small grip on the end of them so that the connection is secure, but easily removeable.

The wire marked 6510 is connected to pin 28 of the processor chip and the wire marked U14 is connected to pin 15 of the chip marked U14 (in fact the chip is not marked U14 at all; it's on the board beside the chip). It's far better to run the wires through the back of the 64 so that the casing can be closed properly and securely.

Don't worry about connecting the wires to the wrong pins; you won't damage anything. The cartridge simply won't work and you'll just have to check the connections again. Having connected the wires to the correct pins the 64 should be put back together again and the cartridge inserted into the cartridge slot.

When you power up the 64 with the 1541 Express properly installed, you'll see three lines to the power up message instead of two. The second line should give the product name and copyright message. The amount of RAM though, is not affected: there are still some 38911 bytes available.

Operation

Using the cartridge is very simple and smooth. When the 64 is powered up with the 1541 Express installed, the two function keys F1 and F3 are set to toggle between fast and slow mode. In other words, the normal disk access time may be used with the cartridge in place by pressing the 'CTRL' key and the 'F3' key together; the screen will flash once quickly to show you the command has been accepted.

To get back to fast mode simply press 'CTRL' and 'F1' together. Again the screen will flash once, although this operation takes a little longer. Holding down the 'SHIFT' key and pressing 'RUN/STOP' will load and run the first program on disk. The cartridge changes the default device to disk. So files can simply be loaded in the form:

LOAD"<FILENAME> <return>

There is no need to enter the device number or close the quotes; the usual abbreviations are accepted.

Ram Electronics claim up to three or four times the usual access time. But the actual speed is more like double on average. Above are some timings for loading and saving both program and word processing files with and without the 1541 Express cartridge.

	Normal	1541 Express
Loading 33K program	84 secs	**39 secs**
Saving 33K program	91 secs	**66 secs**
Loading 34K w/p file	112 secs	**66 secs**
Saving 34K w/p file	92 secs	**68 secs**

These tests are all approximations but they do show that the cartridge doesn't actually achieve three times normal speed. They do however show a large speed improvement particularly with normal programs, as opposed to files loaded and saved from a word processor.

The 1541 Express will work with Easy Script, Paperclip and (I am informed) most other soft loaded word processors. From the tests I found the disk access time was generally reduced by half.

Using other software such as utilities and Basic extensions does not have any adverse effect. Even if a program does conflict it is often possible to load and run it by switching to normal mode.

Buffer space and Sprites

The 1541 normally objects to sprites being on the screen whilst the disk is accessed, but not so with the cartridge installed. You can display sprites and still have access to disk.

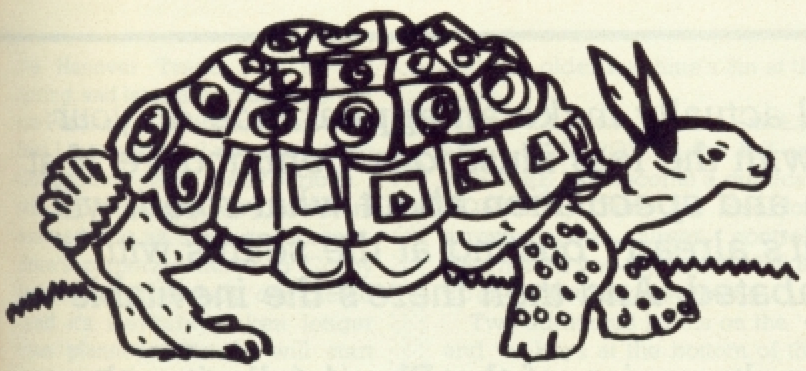
The cartridge reverses one of the drive buffers, reducing the number of files OPEN at any one time from three sequential files, or one sequential and one relative file to two sequential files or one relative file, in fast mode.

You can also use a modem with the cartridge. This allows even swifter downloading of programs. However if you wish to have more than one device connected to the 64's serial port whilst using the 1541 Express, you will have problems, as it will only access one. So anyone with a 1541 and a printer connected to the serial bus or two 1541's will not be able to use the cartridge with more than one of these devices.

Ram says it is going to market a cheap cable that will allow you to have two drives, or a printer and one drive connected whilst using the cartridge in fast mode. The cable will also have some other features. No details as yet; we shall have to wait and see.

At present, depending on what printer you are using and how it is connected, the cartridge may work in slow mode with your printer. Two single drives may be connected with the cartridge installed, but only accessed in slow mode.

The code for the cartridge is invisible; the normal cartridge space is $8000 to $9FFF hex, but upon examination there was nothing there. The space that normally occupies the ASCII code for the power up message has some strange code and the area from $DE00 hex onwards will not disassemble. So for those who are curious, this should provide some challenges.



Documentation

This is the area that's sadly lacking, as is so often the case. The manual is a mere eight pages long and the presentation is not nearly as professional as the product itself. This slim tome covers the installation of the cartridge, the operating instructions, limitations of the cartridge and working with other peripherals. But it gives only a few notes for programmers.

There could be a great deal more explanation of the cartridge in general and the problems that might occur in using it with other peripherals. It's pretty obvious that you're going to have problems using cartridge-based software, say, a word processing package, to access files on disk.

A few demonstration programs with documentation would not have gone astray, together with more information for programmers wishing to make extensive use of the cartridge and its facilities.

Conclusion

It's a shame about the manual, it could have contained a lot more information and the presentation could have been better. The other drawback is of course the lack of a cartridge port when using the 1541 Express; any cartridges you normally use, or wish to use, cannot be connected. And it seems that the only way around this is to buy an expansion board. Even then I am not sure if they would work together; perhaps Ram Electronics will clarify this in the near future.

But the product does do what it claims. And it will save you a lot of time if you use your 64 and 1541 daily. The general standard of the product is very high and I have no hesitation in recommending it. In fact, since reviewing the 1541 Express I have purchased one myself. It is one of those products that you just have to have – that's if you can afford it. ■

Under review	***1541 Express cartridge***
Description:	***Fast disk access utility for 1541 disk drive***
Supplier:	***Ram Electronics***
Address:	***106 Fleet Road Fleet, Hants***
Telephone:	***02514 5858***
Summary:	***Rather expensive but very effective***
Price:	***£49.95***

Adding up the Plus/4

by Karl Dallas

It's now 'official' that the Commodore Plus/4 will actually make an appearance on your local High Street, having made its debut along with the less illustrious Commodore 16 at the recent Commodore Show. But the confusion and speculation about what role it will take on, and what gap it will fill in a market that's already busting at the seams with new and newfangled hardware, rumbles on unabated. And then there's the inevitable competition from the Commodore 64 itself.

Karl Dallas has managed to acquire a pre-launch version of the Plus/4 (albeit without the ROM-based software) and has managed to fuel his own speculations with some hands-on experience, notably of its extended Basic and graphics facilities.



About 18 months ago I was feeling pretty pleased with myself, because I had secured an exclusive preview of Commodore's brilliant new CBM 700 128K business machine. Today, stocks of the 700 are being sold off at bargain prices. Software companies who invested time and money in developing programs to take advantage of the machine's special features are trying hard to recoup their costs.

The point is that when you are dealing with a company whose marketing of new products seems as capricious as Commodore's, the merits of any given machine may have little to do with whether it goes or stays. And when a new machine has as many question marks against its future as the new Plus/4, that may be doubly so...

In the starting blocks

The Plus/4 comes on to the market confronted by some hefty opposition, not only from the likes of the superbly conceived Amstrad and the first of the new common-standard MSX machines from Japan, but also from within Commodore itself. For in many ways, the Plus/4 seems to offer a less versatile and less compatible alternative to the already tried and tested Commodore 64, with more sophisticated Basic programming commands, but without the 64's superb (if complicated to implement) sprites facility.

Indeed, when I first saw the 264 machine upon which it is based at

the Commodore Plus/4 previewed

the Hanover Trade Fair in the spring, and later the actual Plus/4 at the Pet Show in London, I must confess I was sceptical about whether Commodore were really serious. I still feel rather that way, but I am assured that as soon as Commodore's corporate move to Corby has been successfully completed (and it's inevitably taken longer than planned), Plus/4s will start rolling off the production lines in time for Christmas. And software companies are working hard to have adequate applications ready at the same time.

The machine is intended to be quite a powerful package, with 32K of ROM, 64K RAM and advanced Basic, including graphics and sound commands. It has programmable function keys, and an integrated ROM-based software package, covering word processing, spreadsheet, database and business graphics, it is planned to sell at less than £250.

But it won't run any other Commodore software and the peripheral sockets are not the same as for other Commodore machines (apart, that is, for the still-to-be-seen and even more iffy Commodore 16). However, I managed to run an ordinary 1541 disk drive from the serial port, and I actually found it easier, using an ordinary 5-pin DIN plug, to attach a monitor. With my 64, I had to make up a special lead.

So, possibly, the peripheral incompatibility is more a matter of having different plugs than any really distinct differences, though I see we are promised a "fast disk drive", the SFS 481, in addition to the Plus/4's version of the 1541, the 1542.

A clean machine

The computer I had access to was something of a 'clean machine', without the integrated software, so a verdict on that will have to wait. It was also without any kind of manual, though I had access to some technical data that probably won't be in the manual anyway. I must say that after prolonged usage I was much less sceptical about its merits as a piece of hardware.

Shapewise, it represents a real break with Commodore's past. Being more of a rectangle than the fairly skinny Vic and 64 shape (which has also been retained for the 16), about half an inch wider and nearly 1½in deeper. But it's not so high, a mere 2½in compared with the older machine's 3in at the back.

And it has two more keys: ESC above CONTROL on the left and RESTORE has become a duplicate CONTROL. There are also four arrow-shaped cursor controls. That means you require no shift for up and left cursor movement.

Two additional labels on the '<' and '>' keys at the bottom of the keyboard indicate a new function available: FLASH ON and FLASH OFF. FLASH ON is accessed in the same way as RVS ON, by putting it within a quoted print statement, but to switch off this facility you have to reposition the cursor in the same place. As you reach the bottom of the screen, and the text scrolls up, the flashing character scrolls up as well, until it vanishes off the top of the screen. That makes things somewhat difficult.

Colours (including those accessed with the CBM key) and lo-res graphics symbols are printed on the front of the keys.

There are five screen modes, accessed by the GRAPHIC **n** command, where **n** is a number from 0 to 4: **0** is text (25 lines of 40 characters), **1** is hi-res graphics and **3** is multicolour graphics. Five lines of text are available on either of the graphics screens by invoking GRAPHIC 2 (hi-res split screen) or GRAPHIC 4 (multi-colour split screen).



Function keys

On power-up, the four function keys along the top left-hand of the keyboard are dedicated, respectively (unshifted/shifted), to print GRAPHIC/SNCLR (cr), DLOAD"/DSAVE", DIRECTORY/RUN (cr) and HELP/LIST (cr). SNCLR clears the screen (like CLEAR/HOME) and those where I've indicated "(cr)" include a carriage return and hence immediate operation. It's impossible, therefore, to add any parameters to RUN or LIST, unless one rededicates the keys, which is quite easy to do with the KEY command.

The parameters for doing this are: KEY, **n**, **textstring**, where **n** is 1-8 and **textstring** is the new text to be printed and/or implemented when the function key is pressed. Slightly confusingly, F2 is not a shifted F1 but the second key along, so that the keys are actually numbered F1/F4, F2/F5, F3/F6 and HELP/F7.

HELP is a toolkit command for identifying errors in program lines during debugging. Its key can also be redefined, but despite its position it is F8.

The DLOAD/DSAVE options, of course, indicate the first instance where the Plus/4 is superior to the 64, in that it includes all the simple Basic 4 disk commands familiar to Commodore business system users (though the Basic used is described as Basic 3.5). These include: DIRECTORY, DLOAD, DSAVE, HEADER (to format a disk), SCRATCH, COLLECT (to validate a disk and remove any unclosed files, etc), COPY, RENAME and BACKUP (available only with dual disks, to copy an entire disk).

No longer is it necessary to add the device number (still 8) in disk commands: DSAVE"**filename**" is equal to SAVE "**filename**",8. DIRECTORY is the same as the "wedge" command available with the DOS support utility on the 64. Unlike LOAD "$",8 followed by LIST, it doesn't overwrite any program in memory. DIRECTORY can be abbreviated **DIR**, making it a fast way of checking disk contents, program names, etc. The default parameter with all these disk commands is drive 0.

Inside and out

At the back and sides there are nine I/O sockets: 7-pin DIN socket (taking a 4-pin plug) for power from the familiar chunky Commodore transformer, serial 6-pin DIN, cassette 7-pin small cylindrical socket, user port, memory expansion (cartridge port), two 7-pin cylindrical joystick sockets (similar but not identical to the cassette socket), and video 8-pin DIN at the

back, and RF (TV aerial) out on the left. By the RF socket is a low-high switch, and on the right of the computer is a warm reset button and the power on/off.

The keyboard is quite pleasant to use. It's not quite as solid as the 64, certainly not a patch on the very firm, very quiet keyboard on the new business machines; but much less tinny, for instance, than the keyboard on the £3000-plus Hyperion IBM-compatible on which Commodore is basing its promised PC lookalike machine.

Inside, the machine is very well laid-out, with the 48-pin TED chip which provides all the power for the Plus/4's various activities very much in evidence, surrounded by a fence of metal shielding. (Incidentally, no one can explain why it's called TED. We know that the SID chip's name in the 64 is an acronym for Sound Interface Device, but we have it on no less authority than Gail Wellington that if TED ever meant anything, its meaning has now been forgotten).

TED can access up to 64K of memory for display information and it (I almost said he) also controls video output, system timing, dynamic RAM control, ROM chip selection, and keyboard control. TED selects the 16 colours and eight luminance levels per colour, control sound generation, controls the two-speed clock, and flashes the cursor (or any other character) twice a second (2 Hz).

More powerful Basic

On power-up, the screen displays the usual opening array, with the difference that the Basic indicated is 3.5, of course, and there are over 60 Kbytes of memory available.

In all, Basic 3.5 has over 50 more commands and functions than the 64, including 'toolkit' commands used in writing and debugging programs. These include: AUTO, DELETE, ERR$, HELP, RENUMBER, RESUME, TRAP, TRON and TROFF. Structured programming commands are: DO, ELSE, EXIT, LOOP, UNTIL and WHILE.

Then there's graphics commands: BOX, CHAR, CIRCLE, COLOR, DRAW, GRAPHIC, GSHAPE, LOCATE, PAINT, SCALE, SCNCLR, asnd SSHAPE. Sound commands include TONE and VOL.

There are now seven reserved variables: in addition to the familiar TI and TI$ time variables (the use of which is unchanged), there are also the disk status variables familiar to users of Basic 4: DS (status number), DS$ (status message), and ST (status of i/o operation), as well as ER and EL, which gives the error number and line number of a programming error.

Machine-code monitor

The direct command, MONITOR, invokes Tedmon, the resident monitor (which can also be accessed via SYS 4, like the Pets) which has available a set of single-line mnemonic commands (see table above).

A–	assemble a line of 6502 code
C–	compare two sections of memory and report differences
D–	disassemble a line of 6502 code
F–	fill memory with the specified byte
G–	goto a specified address and start execution
H–	hunt through memory for all occurrences of certain bytes
L–	load a file from tape or disk
M–	memory display of hexadecimal values in specified locations
R–	6502 registers display
S–	save to tape or disk
T–	transfer code from one section of memory to another
X–	exit to Basic

The kernal routines seem mainly unchanged, although according to my data sheet IOINIT has an address of $FF81 (not $FF84) and VECTOR is $FF84 (not $FF8D).

Plus/4 graphics compared

Undoubtedly, most hackers will warm to the graphics commands, although it's a pity we've lost the sprites.

As on the 64, the bit-mapped hi-res screen is 319 wide by 199 deep. And the bit-mapped multicolour screen is 159 by 199 (the 64 reference guide says its screens are 320 and 160 wide respectively, but the effect is the same). The GRAPHIC mode command is obviously easier to invoke than the 64's POKEs and PEEKs, as is the split screen, though text is limited to the bottom five lines.

However, text can be placed anywhere on a graphic screen by using the CHAR statement, so that:

CHAR 1,0,0,"THIS IS THE TOP LINE"

will print along the top of the screen, 1 being the colour selected, the first 0 being the first column on the screen (numbered 0-39, not 1-40), the second 0 being the first row (numbered 0-24, not 1-25). The string can be printed in reverse if flagged with a ',1' after, and turned off with ',0'.

It's interesting to compare the Plus/4's DRAW command with the same command in MSX and on the new Amstrad. The Amstrad uses DRAW **x,y(,ink colour)**, starting from the present cursor position, which has the benefit of simplicity, but is limited to straight lines, and the cursor has to be moved to the start position (using LOCATE).

MSX uses a quasi-LOGO syntax, again starting from the current cursor, but with U-D-R-L prefixes for up, down, right and left, plus E (up and right), F (down and right), G (down and left) and H (up and left). A shape can be defined as a variable, so that a square can be defined as **A$** in **AS** = **"U80R80D80L80"** and **DRAW "XA$;"** which executes the square.

The Plus/4 syntax is something of a compromise between the two, linking x,y co-ordinates, so a square could be drawn:

DRAW, 10,10 TO 10,60 TO 60,60 TO 60,10 TO 10,10

The colour of the line can be defined or left blank, in which case the default is the last colour used.

There is also, however, the Plus/4 BOX command specifically to draw rectangles, by specifying the positions of the four corners, with a "fill" parameter to paint the box with colour.

The CIRCLE command will draw ellipses, octagons and even diamonds and triangles as well as proper circles, depending on the parameters specified. The non-circular shapes are chosen by specifying 120 degree angles between segments of a triangle, 90 degrees for a diamond, and 45 degrees for an octagon. The default setting is two degrees.

Colours are specified from Basic by allocating one of 16 to either background, foreground (ie characters), multicolour 1 or multicolour 2, or border, with an optional luminance parameter 0-7. The default luminance is 7, the brightest.

In all drawing commands, the colour parameter has to be chosen from one of the five areas already defined.

PAINT will fill the shape so created, either with the same colour as the shape outline or with a definable foreground colour.

The shapes so created can be SAVEd or recalled by use of the SSHAPE and GSHAPE commands.

It is clear, though, that the graphics capabilities are designed for more serious applications than games, and the sound facilities are likely to be more useful for voice prompts than for space invader explosions. For instance, one software house already has a word processor with spoken instructions supplementing the screen prompts almost ready for commercial distribution.

Conclusions

Despite its appearance, the Plus/4 is not the Mickey Mouse machine it may seem, though whether its target market of small-to-medium businessmen will believe that, remains to be seen. The problem is that this market won't be very concerned about its monitor of powerful Basic, and to the non-technical user it has very few advantages over the already eastablished 64.

Its graphics capabilities, and ease of programming from Basic, are quite powerful, but the lack of any kind of sprite manipulation must put it in a poor second to comparable machines that have this facility.

A lot will depend upon the qualities of the ROM-based software, and how much appeal voice-based business packages are likely to have.

My scepticism about its future is less pronounced as a result of actually using it. But until I've had my hands on a production machine and looked at the ROM-based software, it's not entirely dispelled. ●

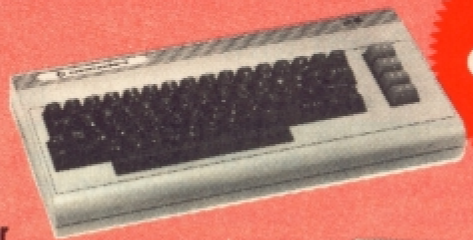
PHONE YOUR BIG "[M logo]" DEALER

FOR DETAILS OF THE COMMODORE COUP



A sensational portable colour computer with a powerful 64K RAM memory, a detachable full-function keyboard and a built-in colour monitor and disk drive

COMMODORE SX-64 PORTABLE



CBM64

Colour sophisticated ROM/RAM user, UHF/Composite video, high resolution graphics



1701 COLOUR MONITOR

A great value colour video monitor.

A top quality disk drive offering quick-access mass data storage



1541 DISK DRIVE



A high-quality dot matrix printer with excellent graphics capability. Accepts tractor feed paper. 50 c.p.s.

MPS801 PRINTER

Phone your nearest dealer for the most competitive prices

"Other Commodore products in stock include the: CBM 1530 C2N Cassette, CBM 1525 Printer, CBM 1526 Printer, CBM 1520 Plotter, CBM 1311 Joystick, and DPS 1101 Printer."

Up to £1000 instant credit — write for details
Micro Management, 16 Princes Street, Ipswich, Suffolk, IP1 1QT

Bucks
Citybench
24 Eaton Place
Marlow
06284 75244

Micro Land
Weatherburn Court
Brunel Centre
Bletchley
Milton Keynes
0908 368018

Cambridge
G.C.C. Cambridge Ltd
66 High Street
Sawston
Cambridge
0223 835330

Cornwall
Computavision
4 Market Street
St. Austell
0726 5297

Derby
First Byte Computers
10 Castlefields
London Road
Derby
0332 365280

Devon
Computer Systems (Torbay)
35 Hyde Road
Paignton
0803 524284

Roy Hart Computer Services
10 Fore Street
Tiverton
0884 253468

Dorset
Solent Micro Systems Ltd
25 Bargates
Christchurch
0202 470468

Durham
General Northern Computing
8 Whitworth Road
South West Ind. Estate
Peterlee
0783 860314

Essex
Essex Computer Centre
216 Moulsham Street
Chelmsford
0245 358702

Focus Computer Systems
140A Hathaway Road
Grays
0375 79717

County Computer Stores
5a West Square
Harlow
0279 414692

The Home Computer Centre
261 Victoria Avenue
Southend-on-Sea
0702 43568

Gloucs
The Model Shop
22 High Street
Stroud
04536 5920

Sabre Consultants Ltd
103 High Street
Tewkesbury
0684 298866

Herts
County Computer Stores
95a South Street
Bishops Stortford
0279 506801/2

Hobbyte
153 Grove Road
Harpenden
0587 3542

Lancs
Amat Computing
67 Friars Gate
Preston
0772 561952

London
Henry's Computer Shop
404 Edgware Road
London
01-402 6822

Miracle Computers
245A Coldharbour Lane
London
01-274 7700

Greater Manchester
Entertainment in Leisure
88 The Rock
Bury
061 797 3463

Control Technology
184 Market Street
Hyde
061 366 8223

Middlesex
Enfield Communications Ltd
135 High Street
Ponders End
Enfield
01-805 7772/7434

N. Humberside
Beverley Computer Centre
1 Windmill Passage
55 Lairgate
Beverley
0482 881911

S. Humberside
Ashby Computer Centre
247 Ashby High Street
Scunthorpe
0724 871756

Kent
Tollgate Computers
249 Beaver Road
Ashford
0233 37187

Data Store
6 Chatterton Road
Bromley
01-460 8991

Canterbury Software Centre
9 The Friars
Canterbury
0227 53531

North Kent Computer Centre
52/54 Bellgrove Road
Welling
Bedley
01-301 2677

Twillstar Computers
17 Regina Road
Southall
01-574 5271

J.K.L. Computers
7 Windsor Street
Uxbridge
0895 51815

W. Midlands
Impulse Computer World
60 Hartford Street
Coventry
0203 27711

Wolverhampton
Computer Centre
17/19 Lichfield Street
Wolverhampton
0902 29907

Norfolk
Abacus
12a Pottersgate
Norwich
0603 61441

Viking Computers
Ardney Rise
Catton Grove Road
Norwich
0603 45209

Somerset
Sinewave Computer Services
Corporation Street
Taunton
0823 57526

Staffs
Eric Reynolds Ltd
86 High Street
Burton-on-Trent
0283 65086/65869

Town Computer Store
30 Town Road
Hanley
Stoke-on-Trent
0782 287540

Suffolk
Brainwave
24 Crown Street
Ipswich
0473 50965

Micro Management
32 Princes Street
Ipswich
0473 59181

Surrey
Concise Computer Consultants Ltd
1 Carlton Road
S. Croydon
01-681 6842

E. Sussex
Gamer
24 Gloucester Road
Brighton
0273 698424

W. Sussex
Orchard Business Systems Ltd
34 East Street
Horsham
0403 68461

Worthing Computer Centre
32 Liverpool Road
Worthing
0903 210861

Tyne & Wear
Video & Home Computers Centre
3 Roxburgh House
Park Avenue
Whitley Bay
0632 534725

N. Yorkshire
Skipton Computer Systems
16 Swadford Street
Skipton
0756 68192

W. Yorkshire
Thoughts & Crosses
37 Market Street
Heckmondwike
0924 402 337

N. Ireland
Everyman Computers
80 Charlotte Street
Ballymoney
Co Antrim
02656 62116/62658

Wales
Automation Services
42 Dunraven Place
Bridgend
Mid Glamorgan
0656 3550

Scotland
Micro Store
38 The Arcade
King Street
Stirling
Central Region
0786 64571

For your nearest European Dealer telephone Belgium or Holland

Belgium
Micro Management
Belgium
Balloerstraat 75
2018 Antwerp
Belgium
03-238 9284

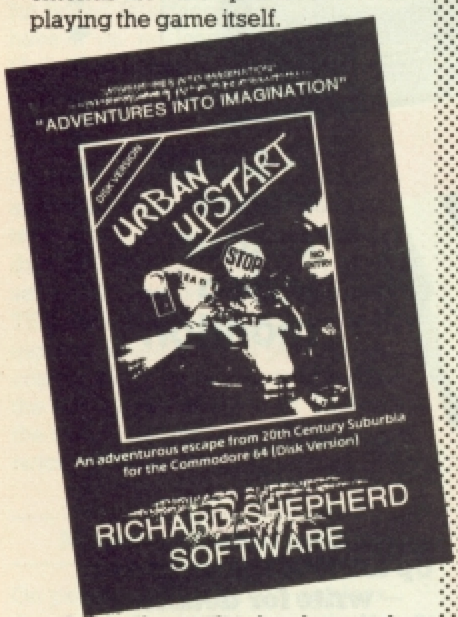
Holland
Micro Management
Nederlands
Raad Huisstraat 98 2406
Ah Alphen-aan-den-rijn
01720 - 72580

Into the Valley...

Opening up a new adventure series

by John Ransley

You're probably familiar with the scenario of the Richard Shepherd graphic adventure **Urban Upstart**, which head-bangs your usual quaint fantasy foes and dripping dungeons in favour of a curiously chilling contemporary encounter that makes *A Clockwork Orange* seem about as violent as a round of arm-wrestling with Quentin Crisp. But it's a bit much when the aggro extends to the practicalities of playing the game itself.



I found out the hard way that **Urban Upstart** takes a particularly uncompromising approach to the task of letting the player save a game to disk at any point. Instead of just cutting a fresh track on your own disk in the form of a sequential file, as seems to be the accepted convention, **Urban Upstart's** Save option first totally reformats the disk you use. In other words, it wipes any and every single program already on the receiving disk to capture (which left me wearing a fixed grin of resigned experience, like one of those Olympic synchronised swimmers) just a single-track sequential file holding the few variables concerned.

There is no warning of this novel consequence of a Save in either the program notes or screen prompts, so I hope you read this before you lose, as I did, a great wad of keyboarding by taking something for granted. I can't fathom why **Urban Upstart** totally reformats instead of simply opening and closing a file in the usual way, but if one program does so, there's a good chance that others do, too. The lesson learnt is that it must be a good idea to test Save any new adventure in your collection, using a blank or expendable formatted disk to do so.

Across the pond

Signs are that after a pretty insipid start Thorn EMI mean to mix with the action in the UK software charts, and it's thanks to them that some of the top-rated titles from American software house HesWare is now becoming available this side of the pond. First offerings include a splendidly elaborate four-level arcade adventure for the Vic-20, **The Pharaoh's Curse**. But it seems that the anger of the ancients has extended to the packaging, because the tape version at least boldly proclaims that no RAM expansion is needed. It is – a wacking great 16K of it. Makes you think twice about impulse buys, doesn't it?

Just what is adventure, anyhow? Already there seem to be four distinct categories. There is the pure text adventure, such as the original **Colossus Caves**; the graphic adventure, such as **The Hobbit**; the animated adventure – **Valhalla**; and the arcade adventure, like **Manic Miner** or **Alice's Adventures in Videoland**. Can anyone think of others?

Page the Oracle

You could call **The Oracle's Cave** from Dorcas Software an endless animated adventure, because not only does it offer four different quests but the cave layout is drawn afresh every time. This title received hot reviews when originally released for the Spectrum, and the version just out for the 64 shows why; it's splendid.

You're faced with the fairly conventional task of exploring a cave complex where you may collect useful objects and treasures, and do battle with a variety of fierce monsters with degrees of success depending on your weapons, current combat strength, and ability to recover from wounds.

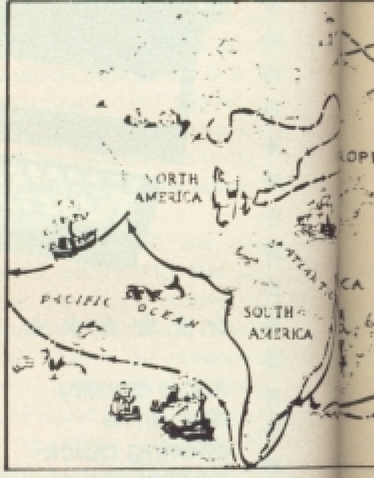
The many options available through single key presses (what a timesaver) including moving in any direction, slipping through secret passages, resting (it eats up time, though), exploring your immediate vicinity, and pleading for help.

A particularly nice feature of the game is that you have just five days to complete each attempt, and a screen prompt shows the morning, afternoon and evening of each day slipping inexorably by as you delve deeper into the complex. Also constantly displayed on the lower part of the screen is lots of other helpful information; such as your combat strength and that of your current foe, the weapons and items you carry, and a mini-map showing the tunnels you've explored, which is redrawn every move.

Meanwhile, the top half of the screen constantly displays a hi-res view of your current location, including a sprite representation (looks a bit like Morph, actually) of your goodself, which walks along the scrolling caveways, wriggles up and down ropes and ladders, and attacks monsters at your command.



What wins extra praise for **The Oracle's Cave** is that the challenges you meet, their solutions and your continuing progress all have a decent logic to them – you don't get struck down at random at the whim of some so-called interactive element. Thus the intelligent gamer can and does eventually win



through. The icing on the cake is that the 64 tape version, priced £7.95, uses the ultra-fast Pavloda system, which gives a reliable Load within a couple of minutes.

Even if, as a purist textual gamer, you buy no other animated adventure, do treat yourself to the entertaining quality of **The Oracle's Cave**.

Colour tip

An irritating shortcoming of many text adventures (and one found in the excellent *Infocom* titles) is that a Henry Ford-type philosophy is adopted when it comes to the matter of text/background colour options – or, rather, the lack of them.

Strange to relate, there are those of us who find the 64's standard combo of blue on blue boring and/or a strain after a little time at the screen. One pities especially the elderly and others with poor eyesight whose enjoyment of a text adventure can be spoiled by the absence of the few lines of programming which can quite easily banish the fault.

If you're writing an adventure yourself, here's a little sub-routine that will make it easy for you to avoid the thoughtlessness of some professional programmers and give players of your game a choice of 256 text/background colour combinations (which can be just as valuable to those using a monochrome TV or monitor).

And it's sometimes possible to break into commercial programs (you wouldn't, would you?), you might even be able to tag this

The list of desirable British and American adventure games for the Commodore 64 is growing week by week. That reflects not only the growing interest in adventuring but also the 64's eminent suitability both in graphics and 'elephantine' memory for this brain-straining pastime.

In response to sackfuls of requests from avid gamers, the equally avid John Ransley has started a regular Adventure column to let you take time off from wondering colossal caves and dodging axe-wielding hobgoblins. But we'll still be relying on you, the reader, to tell us what you want. And in future columns, we'll try to give an airing to readers' comments, ideas and programming tips. But if you're "stuck in the mauve swamp" or you don't know what to do with the Gimblegook's wand, you'll find no real solace here. Now read on...



cake is
priced
Pavloda
reliable
tes.
gamer,
adven-
e enter-
racle's

of many
ound in
) is that
ophy is
he mat-
our op-
them.
re those
tandard
ng and/
e at the
ally the
oor eye-
text ad-
the ab-
rogram-
y banish

lventure
-routine
you to
of some
rs and
a choice
colour
e just as
a mono-

ssible to
rograms
u?), you
tag this

routine on to any title in your collection in which you'd like to incorporate it. Here's the listing:

```
100 REM INTRODUCE FOLLOWING LINES EARLY IN
    THE PROGRAM
110 PRINT "PRESS SPACE BAR TO ALTER TEXT/SCREEN
    COLOURS"
120 GET K$: IF K$="" THEN 120
130 IF K$<>CHR$(32) THEN 150
140 GOTO 500
150 REM PROGRAM CONTINUES
500 X=0
510 PRINT (TAB 2) "PRESS S KEY TO ALTER SCREEN
    COLOUR"
520 PRINT (TAB 3) "PRESS T KEY TO ALTER TEXT COL-
    OUR"
530 PRINT (TAB 8) "PRESS SPACE TO CONTINUE"
540 GET K$: IF K$="" THEN 540
550 IF K$=CHR$(83) THEN X=X+1
560 IF X>15 THEN X=0: GOTO 540
570 POKE 53280,X: POKE 53281,X
580 IF D=159 THEN RESTORE
590 IF K$=CHR$(84) THEN READ D: PRINT CHR$(147)
    CHR$(D): GOTO 510
600 IF K$=CHR$(32) THEN RETURN
610 GOTO 540
620 DATA 005, 028, 030, 031, 129, 144, 149, 150
630 DATA 151, 152, 153, 154, 155, 156, 158, 159
```

Games

Read all about it

Maybe it is a little too fundamental for the experienced orc-strangler, but **The Adventurer's Notebook** by Mike Gerrard (Duckworth, £3.95) is written with such infectious enthusiasm for the subject that it makes a worthwhile addition to the micro bookshelf, whatever one's level of competence. It actually runs to fewer than forty pages of introductory text. But these present a highly readable run-down of the genre's not so ancient history, gaming principles, and playing hints.



The larger part of the book is devoted to ten sets of adventure worksheets, every one of them comprising pages for recording your progress through the adventure, objects found, action taken, recognised verbs and nouns, and so on. And there's a 105-location map for charting your progress.

You could of course use more than one set for larger adventures involving a greater number of known locations. You might even (though don't tell anyone I said so) photocopy extra pages yourself – the lie-flat spiral binding makes this easy to do. It's certainly an improvement on trying to decipher my previous night's squiggles and squares committed to the back of rates demands and book club invoices.

A more substantial volume altogether is Keith Campbell's **Book of Adventures** (Melbourne House, £5.95). Street credibility is enhanced with a foreward by Scott Adams, who comes dangerously close to writing something existentionalist about puddings – but with Adams, what can you expect?

The usual introductory chapters on the genesis of computer adventures (Crowther and Woods now being as familiar a twosome as Fortnum and Mason, Marks and Spencer or Burgess and Maclean) is followed by a gentle scroll through the various stages of creating an adventure, using sensibly an example program with fewer than a dozen locations to keep the baptism simple. But it still manages to incorporate all the main programming ground rules.

You'll learn how to move around the map, site, take and leave objects, introduce special commands and traps, check your inventory, and structure a one-solution finale. All the examples are presented in Basic that is non-machine specific, so Commodore users will have no difficulty in adopting them. The main demonstration adventure, however, is reproduced as an easily-readable customised Listing – one of them for the 64 or Vic.

New releases

One of the more underrated releases of recent months is **Heroes of Karn** by Ian Grey. It's a graphic brain-stretcher that sets the player against the dark forces which have abducted the kingdom's four greatest citizens – Beren the Mighty (last king of Karn), Istar the Wise (lore-master and magician), Haldir the Elf-lord (greatest of minstrels), and Khadim the Dwarf (carver of stone).

Still a relative innocent in this quest, I have no idea yet just how many locations, characters and challenges **Heroes of Karn** will summon up – enough to say that Anton the Gipsy King, the swamp lizard, The Plain of Stones, a strangely-deserted monastery and that ubiquitous grinning skull already have me going round in expletive-peppered circles.

The gamer is presented with a pretty hi-res picture at every new location he visits, but as a time-saver this is suppressed on subsequent visits – although you can call up the graphic again if you want, say, to check for a visual clue. You can enter 'proper' sentences such as "Give tinderbox to swamp lizard" (he ate it – which shows you what kind of home life Ian Grey must have), or "Say to Istar, 'Enter the burrow'...". But cheats like myself must manage without a dictionary of the adventure's permitted vocabulary.



Heroes of Karn is from Interceptor and comes in a sturdy vinyl wallet with clear and adequate playing instructions at £9.95 on disk, £6.95 on tape.

Up and coming and in the shops in time for Yuletide gaming are a sequel from Interceptor to **Heroes of Karn** and a 64 version of Artic's controversial **Ship of Doom**, then there's **Castle Blackstar** and **Pyramid of the Sun**, both text adventures from CDS. A seasonal tangle with the ice age, **Midwinter**, comes from Channel 8 and **Stranded**, a promising graphic adventure featuring a marooned astronaut, from English Software.

And there's more: **Storm Warrior**, an arcade quest is being released on K-Tel's new Front Runner label. And a new state of the art animated adventure from Melbourne House is making its debut on the 64.

And who'll be the first to rush out an arcade adventure Ghostbusters look-alike, now that the movie looks like outgrossing even Steven Spielberg?

Making sweet music

64 synthesiser packages reviewed by Fred Reid

The Commodore 64 has always been a particularly attractive machine for games programmers, not least because it has such sophisticated and spectacular sound and music capabilities. Those tuneful melodies and weird sound effects that accompany your favourite games are all produced by the 64's diminutive yet powerful SID chip.

But actually using SID unaided can be inordinately difficult, especially since the 64's Basic offers no sound commands. So the easiest way to make your 64 play Beethoven (or make him roll over) is to buy one of the many synthesiser packages now available. Recovered from last month's introduction to synthesisers, Fred Reid has been looking at some synth offerings currently available.

Synthy-64

Synthy-64 is a program best described as a music and sound synthesiser/composer. It allows you to enter musical notes and symbols in a similar way to writing a Basic program – numbered lines, each executed in sequence, each containing a number of instructions.

Various other analogies with Basic are evident. For example you can set up sub-routines, loops, nested loops and GOTOs; and you can insert new lines in-between old ones.

But there are several noticable differences – most importantly the 'look-ahead' function. This feature allows the composer to scan through the text, looking for any command that it can execute immediately. This means that you can play up to three notes simultaneously, even if they are not positioned together in the text. Don't worry, the new syntax is not difficult to get to grips with, and the manual explains all.

The envelopes and wave shapes of all three voices can be easily altered; and a whole bank of preset instruments can be set up. The filter and volume controls still effect all three voices, but these can be modified as often as you like during a composition by calling a subroutine. Other functions allow you to select the various filter modes, such as resonance, synchronisation, ring modulation, pitch modulation for filter and/or voice. This makes quite complex sounds (and noises) simple to produce.

Composing tunes

For the would-be composer, a complete set of instructions is



available. These allow music to be written for up to three voices, using all the traditional methods. Any of the 24 possible key signatures can be selected at any point in the composition, as can the 240 possible tempo settings. To play a note, you must enter the note value ('A' to 'G'), the octave (1 to 8), and length (1/1 to 1/64).

In addition, lengths can be dotted, notes can be tied, and so on. Rests for each voice can be set in a similar way, and the 'wait' function can provide pauses lasting for seconds. The only things missing, from a composer's point of view, are bar-lines and other accents.

Lastly, a round-up of some of the other facilities on offer. No music program would be complete without some means of storing and retrieving your pieces, and this one has **Load** and **Save** commands for tape and disk. A 'tracer' function lets you watch the changes in pitch, and waveform, as it plays. And the structure of the music-program storage allows for easy editing. The program even lets you include **Print** commands in your music, and lets you list the music program to a printer – very useful.

Conclusions

Although the manual is generally well written, spelling mistakes abound; the print quality is pretty poor too. As the manual is about 40 A5 pages long and tightly packed (photo-reduced daisywheel printing), an index or quick-reference section would have been nice, not to say essential.

One particularly annoying feature is the three sample

pieces. None of them even came close to the mental image I conjured up from their titles 'Battle Hymn of the Republic', 'Polka' and 'Moonlight Sonata'. The program is so constructed, that you have to load the three aforementioned atrocities and play one of them before you can get down to your own composition. This is not only unnecessary, but almost doubles loading time.

To sum up, this program is limited both by it's non-graphic representation of the music, and by the limitations of the 64 itself, which has only poor dynamic control, and produces background noise from the video circuits. But all that is compensated by the flexibility that Synthy-64 allows. Still, programming a long composition can be a long and tedious affair, but a dedicated effort can produce excellent results.

The Commodore Music Composer

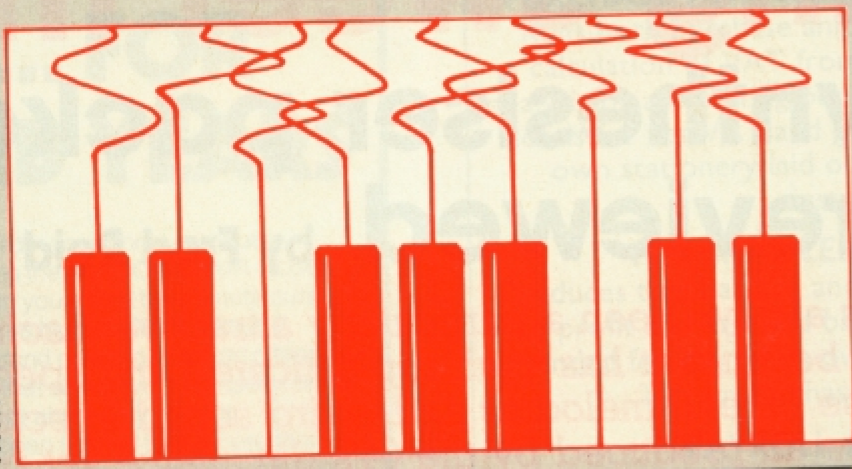
"Are you tone deaf? Do people cringe when you sing or play an instrument? You have just purchased your salvation!" That's the blurb that confronts you on the first page of Commodore's 'Music Composer' manual, as if in defiance of all we know to be true. Can the program live up to this bold statement?

Firstly, Music Composer is cartridge-based, so it loads instantly without you needing to brew a cuppa in the meantime. Powering up invokes a title page with an invitation to press any key. That offer provides you with the main menu; and selecting option 1 from this menu gets you the sample song.

At this point, we notice the main feature of this package; the music scrolls across the screen from right to left, the notes appearing as you hear them. Although the use of smooth-scroll graphics is pretty clever, the feature is almost totally useless because musicians (aspiring or otherwise) generally read about two bars ahead of the note being played or listened to.

Each note appears in a different colour according to which voice is playing it, although this feature can be cancelled if not required, and then all the notes appear in black.

A number of preset instruments are provided, and



can be selected from a secondary menu. These instruments include such audio delights as harpsichord and caliope (a kind of steam organ). Later we will discover how to create our own sounds.

Option two from the main menu turns the 64's keyboard into a piano type affair in the normal way, and as you play, the notes once again scroll across the screen.

Programming

Programming note sequences, as opposed to just playing, is achieved in a similar, yet less complicated way, to **Synthy 64.** You start with a line number, and follow it with a string of notes, length values, octaves, etc. At any point, you can listen to what you have just written, or in the unlikely event of your program overflowing the screen, list it. In this way, you can edit in a similar fashion to Basic.

No composing system would be complete without a **load/save** option, and in this case, the medium is cassette, the option once again being selected from the main menu.

Under the heading of 'Advanced Special Effects', the manual proceeds to describe how to make up your own sounds. Unfortunately, they forgot to allow you to store your sounds for future use!

The manual is slightly larger than 'pocket' sized, and outlines the basic operation of the composer, and briefly explains some of the terminology not common to everyday use. The manual finishes up with a complete and useful guide to what keys do what.

Conclusion

To sum up, a simple little package, with one or two gimmicks but little educational value, and unlikely to remain a treasured part of your collection for long.

Ultisynth 64

Quicksilva, Ultisynth 64's publishers, describes their package as a music processor: perhaps 'sound processor' would better describe Ultisynth's nature.

The package is cassette-based and consequently takes about seven and a half minutes to load. It comes in a large plastic box with a skimpy booklet/manual – more on this later.

On loading, you're presented with a menu for selecting such essential options as **record**, **playback**, **load**, and **save**, amongst others. Selecting **record** produces the main display screen containing information relating to the sounds and notes.

Across the top of the screen is a table containing the ADSR (attack, decay, sustain, release) values and the waveform(s) selected for each voice. Next to this table are four dots arranged in a distorted diamond pattern; the significance of these I have yet to discover.

The lower half of the screen is split down the centre into two halves, containing horizontal bar-charts indicating the frequency of each voice, the tempo of each voice, filter frequency, resonance and others. Control over these functions is obtained by selecting any of the 154 key combinations. That lot makes constant reference to the manual pretty essential.

Playing and composing

In **record** mode, most of the unshifted keys play notes. And as you play each one, it's value is displayed at the centre of the screen while previous values are scrolled left. These values are stored in sequence for later playback. The position of the next note in the sequence can be moved backwards or forwards to enable editing of the all too frequent duff notes you accidentally produce.

Pressing the space bar gets you back to the main menu. Selecting the playback option takes you back to the previous display, with the only difference being that the notes are played back automatically at a tempo of your choosing. (If you can find the correct keys!)

In **compose** mode, you enter notes via a vertical bar chart that scrolls to the left as you set each note. This I found particularly frustrating, as you can't hear what you are doing.

While in **record** or **playback** mode, you are offered a choice of six preset accompaniments for each of the other two voices, as well as a couple of 'user-defined' options. These can be put to use by manipulating blocks of notes in memory using option 6 (transfer notes) from the main menu.

A facility to synchronise the start of all three parts is provided, but this does not guarantee they will continue at the same speed! This, along with the difficulties in renumbering what key does what, makes the whole system very clumsy indeed!

As you'd expect, Ultisynth contains **load** and **save** options for cassette and disk. One slight problem here: if a disk error occurs while loading or saving a music file, like you forgot to close the drive door, the whole program crashes and you are faced with the daunting prospect of re-loading (seven and a half minutes), and worse – re-writing!

Documentation

The manual is approximately pocket-sized, and contains about 50 pages, including reference sheets to detach (and lose), a brief guide to sound and synthesis, and a fair coverage of the essential features of the program. Also included is a Basic program listing to allow the inclusion of music created on Ultisynth into your own games. The manual has a detailed Contents page, allowing easy access to the interior, providing you know what you are looking for.

Conclusion

In my view, the whole idea of a program such as Ultisynth is to make the immense capabilities of the 64's SID chip easily accessible to the average 64 owner. Ultisynth attempts this, but falls a long way short of being 'user friendly'.



RoomLord
NEW
from PARAMOUNT
Retain the inheritance of Roomlord against Demons, Cyclops, Chinese Dragons, Gangsters and many others. 16 full playing screens will elevate you to Super Roomlord.
Written by Jason Benham
Available Now for COMMODORE 64 with Fast Load
COUNTDOWN
VIC 20 – 8 or 16K "Like all the best games, will both infuriate and thrill you." (10 out of 10). Popular Computing Weekly. "An enjoyable and maddeningly addictive game." Personal Computer News.
OUTBACK
COMMODORE 64 and any VIC 20 Deserves to be a best seller. "Oodles of programs for your money." Commodore User. "Super graphics, excellent sound and a great sense of humour (5 stars). Home Computing Weekly.
CHOCABLOC
VIC 20 – 8 or 16K "A very challenging opponent ... well done Paramount." "Should appeal to all devotees of arcade games." Commodore User.
MEGAWARZ
COMMODORE 64 "Exciting and addictive". "Get it." (5 stars) Home Computing Weekly. "A cultured sophisticated space game." "Quite excellent" Commodore User.
Selected Titles available at
Boots
John Menzies
Retailers contact your usual distributor.
Export and distribution enquiry to Marketing Director
PARAMOUNT 67 Bishopton Lane, Stockton Cleveland TS18 1PU (0642) 604470
Post to:– Paramount Software, 67 Bishopton Lane, Stockton, Cleveland TS18 1PU
Roomlord £6.95 ( ) Name........................
Megawarz £7.50 ( ) Address........................
Outback 64 £7.50 ( ) ....
Chocabloc £6.50 ( ) ....
Countdown £5.50 ( )
Outback £5.50 ( )
I enclose cash/cheque/PO for £
Overseas orders add £0.50 per item



New from Alligata
ROCKET ROGER
& THE QUEST FOR THE POWER CRYSTALS
Stranded light years from earth when his spaceship runs out of fuel, Rocket Roger has to put fear to one side and set out to explore the dark mystery planet if he's ever to get home. Luckily deep in the heart of this black world Roger can find the vital power crystal that will recharge his stricken spacecraft. Walk, run, jump and even thrust your way round this single, continuously scrolling screen drama as rocket propelled Roger mines his crystal fuel, fighting off hordes of marauding nasties, keeping an eye out for the sizzling security laser beams, sliding doors and invisible force fields. Don't delay too long between crystals if your jet pack runs out of fuel you'll take a freefall from which you'll never return.
Hold on to your seatbelts! The realistic, free fall scrolling action is so good you may get a little dizzy.
PLAYING AREA
MONITOR
WINDOW
Featuring an amazing playing area of 30 sq feet
(through your screen window you only view a minute area of this planet world)
TAPES £7.95
DISKS £11.95
Alligata Software Ltd
1 Orange Street, Sheffield S1 4DW Tel: (0742) 755796
Despatch is normally made on receipt of order and should reach you within 7 days
Send for full colour brochure (enclose a stamp)
Alligata
Software Limited
Please supply Tape/Disk (delete as necessary)
I enclose a cheque/PO* for †
Charge my Access
Card No.
Name
Signature
Address
*Payable to Alligata Software
†Allow 75p for post and packaging

Multisound Synthesiser

Multisound is yet another cassette based synth package for the 64, this time from Romik. The cassette arrives in an oversized plastic wallet together with a pocket-sized 24 page manual – more on this later.

Loading Multisound takes an intolerable ten and a half minutes. You're finally presented with a control screen labelled 'special effects panel'. This panel contains information relating to **Voice 3** and allows you to produce special effects such as vibrato etc.

Pressing '**U**' toggles between the special effects panel and the main control screen. The main control screen consists of rows of pseudo faders, operated by pressing the key named next to it. This system is one that I wholly approve of, as it resembles a 'real' synth control panel.

The main control panel contains only controls for one voice, mainly **Voice 1**, the voice you are going to play with. **Voice 2** is used exclusively for background tunes or rhythms, and are set up from the same control panel as **Voice 1**.

Playing modes

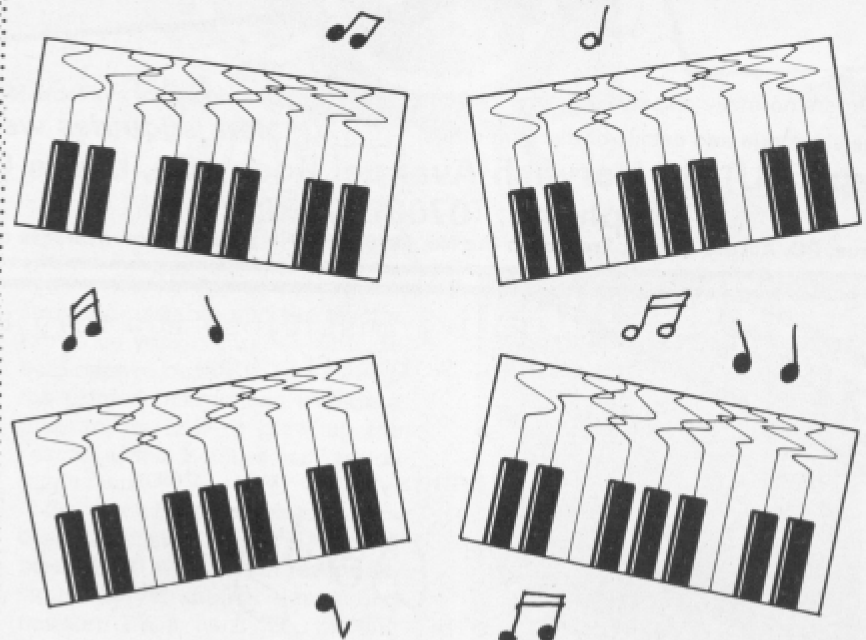
Various playing modes can be entered from the main control panel. Pressing '**F**' gives you a piano-type keyboard on the screen. Pressing a designated key plays that particular note, and the corresponding piano key changes colour.

Pressing '**a**' also gives you the piano type keyboard, but this time the computer records everything you play. Other facilities allow you to continue where you left off after visiting the main control panel, perhaps to change the sound slightly, or make use of Multisound's auto-space function. In this mode, the computer automatically spaces the notes out evenly at a tempo set from the special effects panel.

Of course, being able to record tunes is no good without being able to play them back. **Playback mode 1** allows you to listen to what you've just recorded, and to alter the parameters from the main control panel while you hear the results. **Playback mode 2** is identical to mode 1, but allows you to control the overall tempo with the '<' and '>' keys.

The background generator, as previously mentioned, can be used to store short repetitive tunes or drum patterns, or alternatively, use one of eight pre-programmed patterns. These can then be played back while you record over them with **Voice 1**.

A useful addition to the expected load/save routines is the merge function. This allows you to load a tune from tape, and append it to the tune in memory. Using this technique, a long tune can be written in short sections, stored on tape, and then brought together.



The manual

The manual is a stiff-backed booklet, arranged in seven chapters. The first chapter gives a brief introduction to Multisound, and a description of some of the terms used later on in the manual. Chapters two and three give a brief introduction to synthesiser techniques and the nature of sound. Chapters four to seven describe in detail the Multisound system, and how to use it. Two appendices describe how to set up certain sounds, while a third gives suggestions for further reading. In short, the manual is everything a manual should be, and, being short, it is very easy to find the bit you want.

Conclusion

To sum up, Multisound is professionally packaged, and easy to use. The facilities offered are rather slim, but there is nothing noticeable missing – other than a turbo loader!

Under review

Supplier:	**Synthy-64**
Address:	**Adamsoft** **18 Norwich Avenue** **Rochdale** **Lancs**
Telephone:	**0706 524304**
Summary:	**Dedicated effort can produce excellent results**
Price:	**£9.99 (tape), £12.50 (disk)**

Under review

Supplier:	**Ultisynth 64**
Address:	**Quicksilva** **PO Box 6** **Winborne** **Dorset BH21 7PY**
Summary:	**Good facilities but not very 'user-friendly'**
Price:	**£14.95 (tape only)**

Under review

Supplier:	**Music Maker**
Address:	**Commodore Business Machines** **1 Hunters Road** **Weldon, Corby** **Northants NN17 1QX**
Telephone:	**0536 205252**
Summary:	**A simple little package**
Price:	**£9.95 (cartridge)**

Under review

Supplier:	**Multisound Synthesiser**
Address:	**Romik** **272 Argyll Avenue** **Slough** **Bucks**
Telephone:	**75 71 535**
Summary:	**Easy to use but lacks facilities**
Price:	**£14.99 (tape only)**

The 64 ought to be an excellent computer for games – and fortunately some suppliers are indeed taking advantage of that. Others aren't. Here's this month's crop of reviews.

How do we assess games? Basically we play them – which may sound obvious, except that all the reviewers have seen so *many* games that they can apply a bit of comparative experience to the evaluation.

We rate games out of five for each of four criteria. **Presentation** means how well the thing is packaged and how good it looks on the screen: dull graphics and poor sound get marked down here. **Skill level** refers to how much skill (of whatever kind) is required to play the game – so if pure chance is involved, the game gets a low mark. (But don't dismiss it on that: some 'chance' games are great fun.) **Interest** is an answer to how well the game did at maintaining the reviewer's interest in it. And **Value for Money** is obvious enough: it's our overall conclusion about how it compares with other games and whether we'd buy it ourselves.

SCREEN SCENE

BIZY BEEZZzz
Joystick or keyboard
Price £7.95

Poor Teddy is lost in the forest whilst on the way to the teddy bears picnic. He has discovered a huge bee hive full of honey and as he is beginning to feel rather hungry, you have to guide him through the 16 screens of ladders, lifts and moving platforms to empty the honeypots.

Unfortunately, bees don't take kindly to teddy bears invading their hives and making off with their honey, and are therefore very prone to sting if you can't move Teddy quickly enough. Very fast moving with good graphics and an excellent selection of tunes.

WG/PR

Solair Software

Presentation: ■■■■□
Skill level: ■■■■□
Interest: ■■■□□
Value for money: ■■■■□



BLUE THUNDER
Joystick or keyboard
Price £6.95

As the sole survivor of a once mighty invasion force you must skilfully pilot your Jetcopter through a bombardment of electronic storms, ground and sea-based missiles and attack from armoured barrage balloons. If you survive this lot you must then destroy the unstable nuclear reactor to rescue your comrades who are held captive beside it. Fortunately, the printed instructions include a diagram on how to blow up the reactor as this is not as easy as you might think.

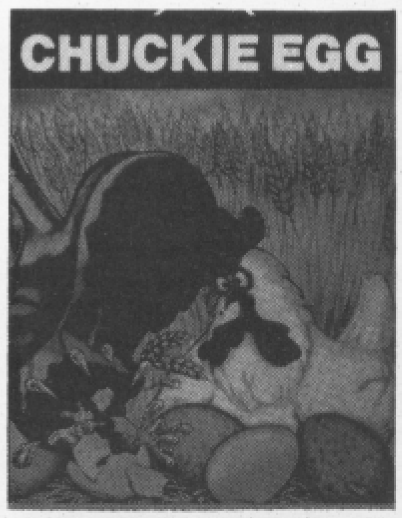
Once you have completed a successful mission you will be debriefed and after a short rest be assigned to yet another demanding mission. It's a hard life, piloting Blue Thunder! Good graphics and somewhat addictive!

WG/PR

Richard Wilcox Software

Presentation: ■■■■□
Skill level: ■■■■□
Interest: ■■■■□
Value for money: ■■■■□





CHUCKIE EGG
Joystick or keyboard
Price £7.90

The chief delight of this ladder/maze/platform conumdrum lies in simply reaching out-of-the-way places in search of the corn and eggs needed to reach the next screen, whilst cocking a snoop at the prowling ducklings. However adept you become at coasting through the eight screens, when big Ma duck breaks free on level nine it's time for a re-think on the soundness of your tactics.

Delicate hops, deft jumps and evasive action are very much the order of the day. Definitely for the platform-jumper enthusiast, as the graphics and sonics can only be construed as adequate; but for stayers of the course the 256 levels (I asked A&F about that as I don't have the next two years free) proffer a stiff challenge.

Apart from being pecked to death it is very possible to come to grief by falling down a lift shaft ... oh yes! Lifts are an essential ingredient and add to the fun/frustration.

I'm afraid there seems to be a fly in the ointment ... it doesn't seem possible to skip some of the early levels which of course can lead to the "oh no! back to the start again" syndrome. So keep gaining points to earn extra lives. A quick-load system boosts the presentation mark.

LS

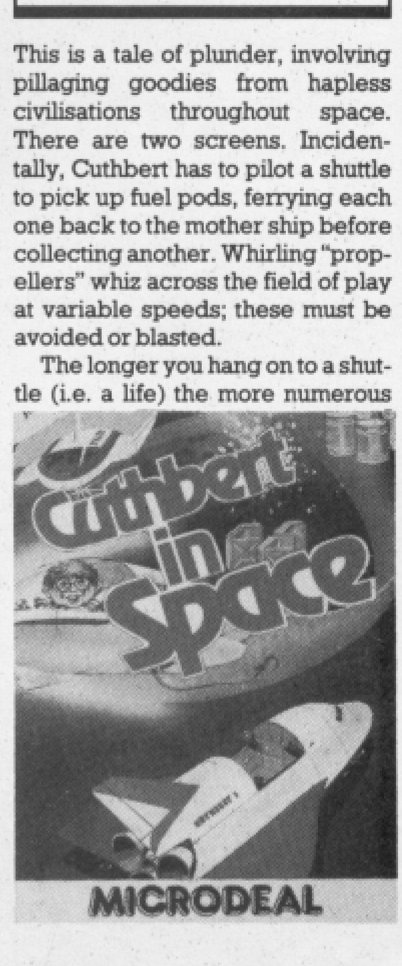
A&F

Presentation: ■■■■□
Skill level: ■■■■□
Interest: ■■■□□
Value for money: ■■■■□

CUTHBERT IN SPACE
Joystick or keyboard
Price £8.00

This is a tale of plunder, involving pillaging goodies from hapless civilisations throughout space. There are two screens. Incidentally, Cuthbert has to pilot a shuttle to pick up fuel pods, ferrying each one back to the mother ship before collecting another. Whirling "propellers" whiz across the field of play at variable speeds; these must be avoided or blasted.

The longer you hang on to a shuttle (i.e. a life) the more numerous



the missiles become. When sufficient fuel is on board it's time to collect the apparently extremely desirable objects raining down from the sky, still riding-out the same defensive system, until the going gets too hot and discretion dictates a departure for pastures new.

This pattern is frequently punctuated by an unusual phase. Briefly, you need to match one set of co-ordinates with another then return to the first value. The catch is that the numbers are increased/decreased by using a different joystick/cursor control each time. Naturally a life depends on completing the exercise within a given time.

Twelve levels (you may skip the first seven) should provide challenge enough for any budding Cuthbert. Very colourful, but little in the way of spectacular graphics and sound *LS*

Microdeal

Presentation:	■■■■□
Skill level:	■■■□□
Interest:	■■■□□
Value for money:	■■■□□

DICKY'S DIAMONDS
Joystick or keyboard
Price £6.99

We have a deceptively hard teaser here, centered around a spider's web. Being a remarkably small owl you find it easy to run along the strands of silk, eliminating them as you go, until the whole web is destroyed. But you can fly from one section to another should there be no connecting thread left intact. Why should you do this? 'Cos the spider has nicked your diamonds and keeps one on display slapbang in the middle of his silken net ... unravelling it is the only way to retrieve the jewels.

The spider, unfortunately, does tend to make running repairs; that could well be a sign of faulty tactics on my part. I managed to succeed and flew off with one diamond; plenty more left, as always, with two spiders to contend with later in the game.

The last thread to be removed must be a central one otherwise there is just a spectacular structural collapse but no gem stone.

Plenty of options to mull over: speed, starting level, unlimited flights (or just the total allowed for by the current screen), second spider, plus the ability to save the high score to tape. Fair sonics including flapping wings and a title theme with a couple of neat visual effects. *LS*

Romik

Presentation:	■■■■□
Skill level:	■■■■□
Interest:	■■■□□
Value for money:	■■■■□



FELIX IN THE FACTORY
Joystick only
Price £6.95

The tried and tested ladder/maze features once again. Indeed there is nothing original in the program, but like all good recipes, the ingredients have been well chosen and skillfully blended to present an appealing offering which will have you clamouring for second helpings. The man-of-the-moment is faced with the task of topping-up a generator with oil. True to form the oil-can is anywhere but in a convenient position; so it's a dash along the conveyor belt, jumping over parcels, and up the ladders to the upper floors of the factory.

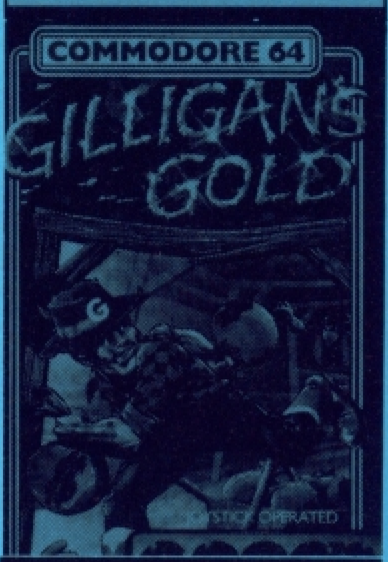


Gremlins (up to three species) are on the prowl presenting you with the choice of evasion or trying your luck at impaling them with a pitchfork. The odd, squealing super-rat tends to dash across any floor at random necessitating a perfectly timed jump: you may even poison him for a bonus. Failure to stoke the generator within the alloted time costs a life as does carelessly bumping into a monster. But tumbling over a parcel merely deprives you of the oil-can you might be carrying, plus precious time.

As far as I can see there is just one screen, although success ushers in further supplies of meanies to provide variation. The author has succeeded in producing a challenging game. Should you require only one example of the ladder/maze idiom then a good version of *Kong* will provide greater depth. *LS*

Micro Power

Presentation:	■■■□□
Skill level:	■■■■□
Interest:	■■■□□
Value for money:	■■■□□



GILLIGAN'S GOLD
Joystick only
Price £6.90

Ocean Software continue to produce excellent games, and *Gilligan's Gold* is no exception. The objective is to help Gilligan collect bags of gold and place them in the wheelbarrow before time runs out, while at the same time outwitting the outlaws who are after you – and the gold. Each bag you collect gives you more time but they do slow you down. To avoid the outlaws you can jump on the trucks (by hanging on to the hooks) or escape via the ladders and lifts, but do watch out for the mine shafts; they're deep and deadly!

Good graphics and a catchy tune add up to another enjoyable Ocean game. *WG/PR*

Ocean Software

Presentation:	■■■■□
Skill level:	■■■□□
Interest:	■■■■□
Value for money:	■■■■□

GYROPOD
Joystick only
Price £6.90

A two-screen cosmic-combat jamboree featuring a novel depiction of a space ship. The game opens with a module (you're inside) docking with a doughnut-shaped mother ship, which is shown in three quarter-view perspective. By now you have taken control of the blue, double-barrelled gun turret which can be zoomed all around the outer circumference of the ring.

Thanks to the magic of sprites you can see the position of your blaster even when on the reverse side of the battle ship's rim. To annihilate the oncoming, gyrating UFOs, fire will have to be directed from all sides of the silver craft.

Run out of ammo? Or perhaps the shields are weakening. If so catapult down to the nearby planet (the same one that's due for the chop), taking care to ease-up and land gently; grab some supplies whilst warding off the aliens with your stun pistol, then hop back in and blast off.

When all the UFOs have been despatched and their planet is warped into eternity, it's time to terrorise another civilisation with their own ideas as to how space ships should be designed. So it continues through four waves of alternating mass devastation and hand to hand confrontations.

Strong on sound, as it seems everything from Taskset is going to be, with the pictorial side showing flair and imagination. *LS*

Taskset

Presentation:	■■■■■
Skill level:	■■■□□
Interest:	■■■■□
Value for money:	■■■■■

HOUSE OR USHER
Joystick only
Price £6.95

Got a few months to spare? If so, and you relish nigh impossible

challenges then this could be your red letter day. Don't be fooled by the entrance hall; enter any one of the eight doors and you face such obstacles as cannon balls, disappearing floors, pounding pistons, monsters and various other bizarre, highly improbable obstacles. This is the stuff that joystick acrobats thrive on...

On the impressive title screen you arrive at the creepy mansion and climb the stairs to the door. I couldn't understand the relevance of the particular accompanying music, but what the heck. If you ever manage to wend your way through the eight rooms jam-packed with seemingly insurmountable hurdles, the door to the treasure chamber is opened to you, to be followed by revelations as to the meaning of life, or something similar. Honest, it's really tough... well... extra tough. And the faint hearted shouldn't touch it with a barge pole. *LS*

Anirog

Presentation:	■■■■□
Skill level:	■■■■■
Interest:	■■■□□
Value for money:	■■■■■

SCREEN SCENE

ICE HUNTER
Joystick or keyboard
Price £6.95

Another fast loading program – the software companies are really getting the idea now. Thorak, Prince of Ice, has made his way into the multi-level cave. Now all he has to do is collect the blocks of ice necessary to build a very special igloo. However, the path of igloo-building is not that straightforward and Thorak has to fight off some very strange creatures, the first of which is a dragon-like beast wandering about the first three levels. Kill it either by dropping a block of ice on its head, or when the occasion arises, and after eating a power pill, by crushing it underfoot.

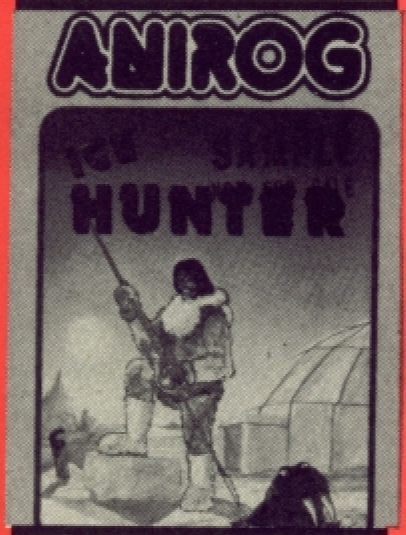
Thorak can drop his ice blocks through patches of thin ice which will only bear his weight once; to move from level to level he must use the support pillars. Once he has travelled from the kingdom of the dragons he reaches the kingdom of the strange mutant sea-lion species, and he cannot go back to collect any blocks left behind or to escape the sea-lion.

Finally Thorak (no doubt exhausted by now – I certainly was!) has to float the blocks downstream to his igloo for storage. Then he has to return to another cavern to gather more blocks. Not unnaturally, Thorak faces greater and more threatening dangers in his efforts to build his dream igloo.

Good graphics, very little in the way of sound, but all in all a good game. The ice effects are so realistic; my fingers felt quite cold whilst manipulating the joystick! *WG/PR*

Anirog

Presentation:	■■■■□
Skill level:	■■■□□
Interest:	■■■□□
Value for money:	■■■□□



MR DIG
Joystick or keyboard
Price £8.00

This is (unfortunately) very similar to *PacMan* in its somewhat basic approach. Mr Dig must dig for hidden food supplies in the Meanies territory below ground. As he digs he can eat his way round cherry groves whilst being followed and attacked by the Meanies which can be crushed by dropping apples on them. Meanies can't dig tunnels or eat cherries, but watch out that they don't change into miners, which



can do both. Every so often a fallen apple will split open and reveal a sparkling diamond – collecting this increases your score immensely.

Also introduced into the game are mallers (mallers?) and a letter monster. You can destroy the mallers individually, when they will mutate into apples, or they will disappear when the letter monster is destroyed. You can destroy opponents either by launching your power orb or by dropping apples on them!

There are nine levels of play from Baby to Masochist, so there should be a level to suit most people. *WG/PR*

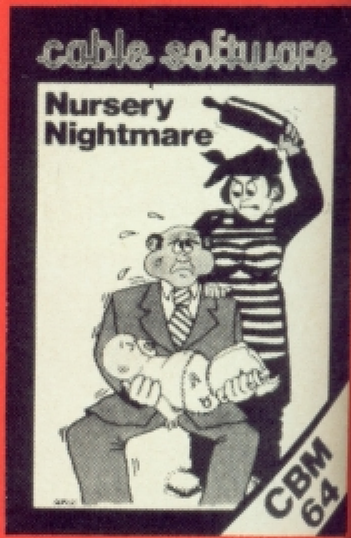
Microdeal

Presentation:	■■■□□
Skill level:	■■□□□
Interest:	■■□□□
Value for money:	■■□□□

NURSERY NIGHTMARE
Joystick only
Price £7.50

Not a blockbuster but an extremely enjoyable, simple game with five levels of genuine increasing difficulty – the situation changes, not just the tempo. Everything revolves around your attempts to keep your offspring bloated with milk. The screen is divided into three lanes, separated by green lines: you, the harassed husband, may cross them with impunity. But if you attempt to take baby with you, on storms the apple of your eye to bonk you on the head. She will also appear if you drop your infant on the floor or fail to return with the milk in time.

You will need to carry the baby to the top of the screen, release it, zoom across to pick up a bottle, then backtrack in time to catch the infant who is tumbling toward the foot of the screen. No time to lose,



as the countdown has resumed, back to the top and make for the next bottle.

Level two sees the milk moving as well as the toys while the next trial of skill forces you to cross two lanes: it's just like running across the M1 and back again. Obviously timing, anticipation and sharp reflexes are needed. Nothing special about the graphics nor the sound, which just complements the action. Refreshingly uncomplicated entertainment. *LS*

Cable Software

Presentation:	■■■□□
Skill level:	■■■□□
Interest:	■■■□□
Value for money:	■■■■□

ORC ATTACK
Joystick only
Price £7.95

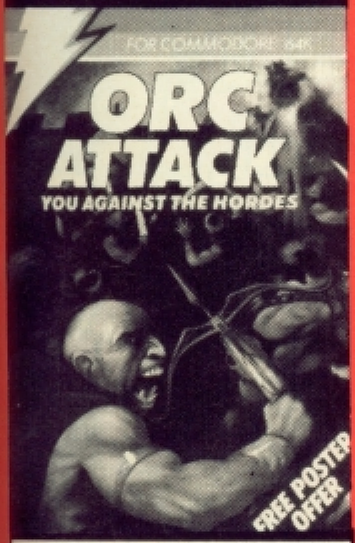
The Orcs are coming! They are scaling the castle walls and trying to stab at you with their murderous daggers. A crossbow bolt zips past your left ear – but are you afraid? No! You are Sir Eric the Brave; vile Orcs will not get the better of you.

Armed with rocks, boiling oil (very nasty!) and your trusty broadsword, you must fight the Orcs until the last one is dead. But even then the castle is not safe – the evil Sorcerer appears and commands his spirits to attack you. You may survive and slay him, but now the dreaded Stone Warts are after you. It's a never-ending task, defending a castle these days!

Full sound and good graphics make this an enjoyable game, though the picture on the package frightened the cat! And they ask if you want a free poster version of it as well... *WG/PR*

Creative Sparks

Presentation:	■■■■□
Skill level:	■■■□□
Interest:	■■■□□
Value for money:	■■■□□



PESKY PAINTER
Joystick or keyboard
Price £6.95

The first screen discloses four palace guards pursuing the painter chappie, making sure he prepares the surfaces instead of just slopping on the jollop. You have to outthink and out-run them until you've travelled every corridor, cleaning up the whole caboodle. When the four corners have been coloured it's the guards' turn to skedaddle, adding bonus points, if you catch them, to your score for each completed square.

A brief intermission for the bonus screen, guide the creature to a bunch of bananas, then down to business. Your chance to paint, now that you have turned into a paint brush. But each room has to adjoin a previously painted area. To help you avoid the mouse-like pursuers three fire crackers are at your dispossal. Success takes you back to a harder screen one; one extra guard and naturally a change of colour scheme.

Musically speaking the contents are very similar to Paramount's *Outback 64*, which is a fair recommendation. *LS*

Super Soft

Presentation:	■■■■□
Skill level:	■■■■□
Interest:	■■■□□
Value for money:	■■■■□

TURTLE JUMP
Joystick only
Price £6.95

What a dinky game! You are a giant ant living on a treasure chart; on an island in the centre, to be precise. Naturally you feel compelled to travel to the outlying land masses, to Eldorado in particular. Of course the journey isn't easy; you can jump short distances across logs and magic islands but the main method of travelling is to hitch a ride on a turtle. You have to keep with them, or splash away one life, and be prepared to swap reptiles in midstream in order to make progress.

Their direction changes in response to obstructions; but beware of the crocodile which causes the flotilla to crash dive. Having arrived at the treasure chest make sure that you don't get squashed by the lid by spending too long grabbing the gold. On the way back to base you may deem it advisable to make a detour to stoke-up your energy levels by gobbling bonus fruits.

Precise joystick control, with an appreciation of just how far you can leap, is a must. The peculiar sound effects enhance an interesting, though uncomplicated game which is bound to grow on anyone who doesn't demand incessant mayhem. *LS*

Romik

Presentation:	■■■■□
Skill level:	■■■□□
Interest:	■■■□□
Value for money:	■■■■□



MICROPOWER
CYBERTRON MISSION
Fort Cyberton, the most well-protected stronghold in the galaxy. Obliterate the Spinners, Clones and Cyberdroids as you explore the 64 room complex in search of the Fort's riches. Avoid touching the walls with their sizzling high voltage charge and watch out for the relentless spook who glides through walls in hot pursuit.
£6.95. (ELECTRON and BBC MICRO versions £7.95)
commodore 64
(SUPER-FAST LOADING TIME)
electron
B.B.C. MICRO
MICRO POWER
MICRO POWER LTD., NORTHWOOD HOUSE, NORTH STREET, LEEDS LS7 2AA TEL: (0532) 458800
SELECTIVE BRANCHES OF BOOTS, CO-OP, MENZIES, W. H. SMITH, WOOLWORTHS AND ALL GOOD DEALERS.
AUTHORS! WE PAY 20% ROYALTIES!
SWOOP, GHOULS AND FELIX IN THE FACTORY ARE ALSO IN THE SHOPS, AND THEY'RE AVAILABLE NOW!

Games

SCREEN SCENE

TYPING WIZARD
Keyboard only
Price £8.50

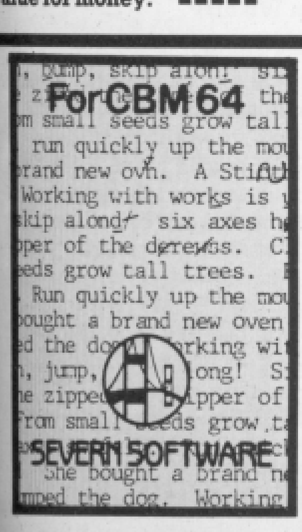
Although not a game, we've decided to include Typing Wizard here as somebody somewhere may conclude typing is fun.

Have you ever been ashamed to put your two fingers to the keyboard, having witnessed a dizzying feat of ten-fingered touch typing? Well, now help is at hand – you can improve your typing prowess in secret, using this patient tutor from Severn Software. In a series of lessons, ranging from the home keys to the whole keyboard, you are shown a graphic keyboard, with your fingers resting where they should be. You must type exercises exactly as shown on the screen; the computer beeps and rejects any wrong keys. The letters are single letters, followed by groups of letters. At the end you are told how many errors you made, and your average typing speed. Also included is a speed test – you simply choose your own text, and type away. The 'Copy-what-you-see' exercises will also help keep your eyes away from the keyboard, a good discipline.

One niggling point, though: the program uses F7 as its Continue key, which can be awkward when you're at the start of a lesson, setting up your fingers as instructed. Having just arranged your fingers correctly, you must then remove your hand and press F7 to continue .. Nevertheless, the program should prove useful to those of you who need to become proficient typists. *DW*

Severn Software

Presentation:	■■■■□
Skill level:	n/a
Interest:	n/a
Value for money:	■■■■■



VALHALLA
Keyboard only
Price £14.95

At last, Legend has released *Valhalla* for the 64. I say at last, because it made Game of the Year on the Spectrum. But this new version not only equals, but improves upon the original. Apart from running faster on the 64, the characters are now in colour – and there is a 'mono' command for those with monochrome monitors and TVs, which selects a more limited, but easier to see, colour scheme.

For those who don't know what all the fuss is about, I shall attempt the impossible, in describing *Valhalla* in one paragraph. It's a real-time adventure game in which the players must find magical objects. As you roam through the graphically-depicted locations, you can gather food, weapons, armour and other such items along the way, which are vital to your survival. The player and any other characters nearby are presented by little animated figures, which move, fight, eat, drink and generally act out the adventure as described by the text.

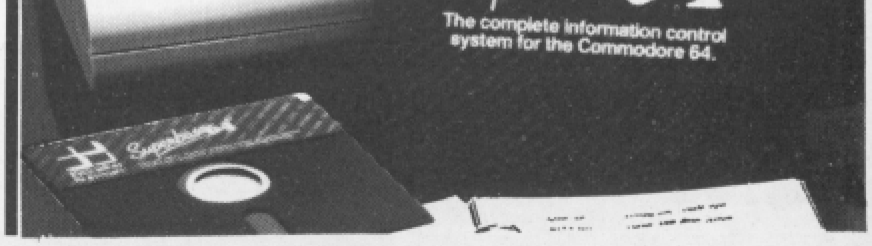
As the game is in real-time, even if you didn't do anything, the other characters aren't idle, and will come and go as they please, often fighting amongst themselves – and with you, depending on their opinion of you. One thing about the 'animaction' taking place all around you is that you may actually have to wait a while before the computer processes your command, as you must wait for events such as fights and deaths to end. As the player is depicted on the screen, it is possible to move left and right – to reach a bottle of wine, for instance – and not just the normal N-S-E-W of other adventures. If you issue a command such as 'Get Sword', you will see the player-character do just that on screen.

I have only scratched the surface of the complexities of *Valhalla*. I could write a book just describing it – indeed, the instructions provided with it are themselves on the meaty side. The what-you-see is what-you-get approach to the accompanying graphics is an interesting approach (they call it 'MOViSOFT').

In conclusion, I hardly have to add that this is a complex, well thought out adventure, which will keep the most intrepid of adventurers amused for many hours of good adventuring. Happy Adventuring!!! *DW*

Legend

Presentation:	■■■■□
Skill level:	■■■■□
Interest:	■■■■■
Value for money:	■■■■■



Commodore Français – frenchify your Vic or 64

by George Pike

Fed up with boring old French tests? This seems like a good job to sub-contract to the computer. English is no problem; but what do you do about those tricky French accents? One way would be to chicken out and work entirely in capital letters. No accents required then, but that's hardly helpful.

Once you've discovered user defined graphics, it's easy enough to design the accents and put them into the computer. But then the question is how to get them in the right place and get rid of them from the wrong place. And wouldn't it be nice to put them on the function keys – four keys for three accents and the cedilla?

Then Tommy came to the rescue; he gave me the idea of using GET statements to feed words into the computer rather than INPUT. The disadvantage is that there is no flashing cursor. The advantage is that each letter and string is put in and stored separately and the word built up after RETURN has been hit. Accent strings consisting of the defined graphic and necessary cursor controls can then be assigned to the function keys by a set of four lines, for example: **IF X$ = CHR$(133) THEN X$ = A$**. (**A$** being one of the four accent strings).

Before starting on the program itself, here are some practical points.

Some points for VICtims

The programs only work with the unexpanded Vic or with either 3K expansion or the Super Expander. The actual Frenchifying uses up most of the unexpanded Vic so one of these cartridges is virtually essential for a practical program.

With the Super Expander, either assign the strings to other keys or disable the function keys before starting to LOAD or program. To disable the keys, type in: **SYS64850: POKE 641,0: POKE 642,4: POKE 643,0: POKE 644,30: POKE 648,30: SYS 64824** and RETURN. Again, thanks to Tommy. The screen changes to show **6650 BYTES FREE** and the function keys are all yours.

If you're going to use the Programmer's Aid Cartridge, the function keys are a pain. Assign the strings to other keys. To do this, simply alter the **CHR$** numbers. The values for each key are in the users' manuals. They can be assigned back to the function keys immediately before the program is SAVEd.

The 64 Screen

What maniac chose the colours of the 64 switch-on screen I do not know. Line 100 is simply to make the text legible. Please yourself.

And remember, *SAVE before you RUN user defined programs.* Once Stage Two is working, it is time to add the user defined accents, that is the 200+ and 300+ blocks. SAVE before you do this and SAVE again before you RUN the program. One error in the 200's can crash the 64 and all that has gone before is lost – most annoying.

Allons y

Do not be alarmed by four listings. They follow on from each other, building the final program up in stages to demonstrate the routines used. By leaving the 'real' accents to a later stage, a lot of time is saved when RUNning to test and explore intermediate stages.

Stage One: just follow the program listing. The **M** in **line 930** is not needed yet but it is safer to include it now. As each



Map of France, Britain's nearest neighbour in Europe

Stage One listing

```
100 POKE53280,3:POKE53281,7:PRINT"[RED]"
400 DIML$(30),W$(30)
500 PRINT"[CLS][4CD] [G>T]YPE IN YOUR WORD."
800 N=1:M=1
810 GET L$(N):IFL$(N)=""THEN810
860 IFL$(N)=CHR$(13) THEN980
910 PRINT"[HOM][8CD]"SPC(N+2)L$(N)
930 IFL$(N)=CHR$(20) THEN N=N-2:M=M-1:GOTO950
950 IFN<1 THEN N=0
970 N=N+1:GOTO810
980 FOR D=1 TO N-1:W$(A)=W$(A)+L$(D):NEXT D
1000 PRINT"[CLS][2CD][2SPC][G>A][G>SPC][G>L][G>I][G>S][G>T][G>SPC][G>U][G>F][G>S
PC][G>Y][G>O][G>U][G>R][G>SPC][G>W][G>O][G>R][G>D][G>S][G>SPC][G>S][G>O][G>SPC][
G>F][G>A][G>R]."
1010 FOR P=0 TO A:PRINT"[3CD]"SPC(4)W$(P):NEXT P
1020 PRINT"[2CD][2SPC][G>T]O ADD TO THE LIST, PRESS ANY KEY."
1030 GETK$:IFK$=""THEN1030
1040 A=A+1:GOTO500
```

letter is fed in at **line 810** the letter count is advanced by one. The DELete key functions normally and RETURN is used to signal that the word is complete.

So far just like INPUT without the flashing cursor. But with one exception, the word is not yet built up. That is done in **line 980**. The first word is **W$(0)**, the second **W$(1)** and so on. **L$** and **W$** must be DIMensioned in **line 400** up to the maximum number of letters in a word and the maximum number of words to be fed in.

Type the program in and RUN it. Not sensational but a start. The computer should ask you to type in your word. Do this and when it is correct hit RETURN. There should then be a list of words typed in so far and an invitation to press a key to add to the list.

Eventually the program will operate in 'Typewriter' mode. This means that any letters that are finally to appear as capitals must from the beginning by typed in as SHIFTed characters. Looks a bit odd at this stage, but so what?

Stage Two: now we come to the important bit, the accents. Or, at this stage, 'sort-of' accents. But never fear accents they will be in due course.

Stage Two is simply Stage One with some lines added. Type in the extra lines and amend **line 910**. **Lines 90, 905** and **910** can be removed now. **Lines 410-460** contain the accent and accent delete strings. The accents are going to be on Commodore-shifted **X, C, V** and **B** and for now those graphics symbols will be used as accents.

Accents don't need to be printed an extra space out. In fact one of the things an accent string does is to pull the character back a space. We must then count two things separately, the number of letters and accents and how far out to print. **N** counts how many and **M** how far.

The program works very much as Stage One except that the function keys put strange graphics above or below letters. Have faith, they will be accents soon. Press the function key after the letter which the *accent* or *cedilla* is to go over or under.

Once this stage is working, it is time to SAVE the program. Now to business, the computer is to be Frenchified.

Stage Two listing

```
50 REM STAGE TWO
100 POKE53280,3:POKE53281,7:PRINT"[RED]"
400 DIML$(30),W$(30)
410 A$="[CU][CL][G<C][CD]"
420 B$="[CU][CL][G<X][CD]"
430 C$="[CU][CL][G<V][CD]"
440 D$="[CD][CL][G<B][CU]"
450 Y$="[CU][CL] "
460 Z$="[CD][CL] "
500 PRINT"[CLS][4CD] [G>T]YPE IN YOUR WORD."
510 PRINT"[11CD][10SPC][G>U]SE[6SPC]F1[2SPC]FOR[2SPC][G<C]."
520 PRINT"[19SPC]F3[2SPC]FOR[2SPC][G<X]."
530 PRINT"[19SPC]F5[2SPC]FOR[2SPC][G<V]."
540 PRINT"[15SPC]AND F7[2SPC]FOR[2SPC][G<B]."
800 N=1:M=1
810 GET L$(N):IFL$(N)=""THEN810
820 IFL$(N)=CHR$(133)THENL$(N)=A$
830 IFL$(N)=CHR$(134)THENL$(N)=B$
840 IFL$(N)=CHR$(135)THENL$(N)=C$
850 IFL$(N)=CHR$(136)THENL$(N)=D$
860 IFL$(N)=CHR$(13) THEN980
870 IFL$(N)=CHR$(20)ANDL$(N-1)=A$THENL$(N)=Y$
880 IFL$(N)=CHR$(20)ANDL$(N-1)=B$THENL$(N)=Y$
890 IFL$(N)=CHR$(20)ANDL$(N-1)=C$THENL$(N)=Y$
900 IFL$(N)=CHR$(20)ANDL$(N-1)=D$THENL$(N)=Z$
905 REM IN LINE 910 CHANGE SPC(N+2) TO SPC(M+2)
910 PRINT"[HOM][8CD]"SPC(M+2)L$(N)
920 IFL$(N)<>A$ANDL$(N)<>B$ANDL$(N)<>C$ANDL$(N)<>D$THEN M=M+1
930 IFL$(N)=CHR$(20) THEN N=N-2:M=M-2:GOTO950
940 IFL$(N)=Y$ORL$(N)=Z$THEN N=N-2:M=M-1
950 IFN<1 THEN N=0
960 IFM<1THEN M=1
970 N=N+1:GOTO810
980 FOR D=1 TO N-1:W$(A)=W$(A)+L$(D):NEXT D
1000 PRINT"[CLS][2CD][2SPC][G>A][G>SPC][G>L][G>I][G>S][G>T][G>SPC][G>O][G>F][G>S
PC][G>Y][G>O][G>U][G>R][G>SPC][G>W][G>O][G>R][G>D][G>S][G>SPC][G>S][G>O][G>SPC][
G>F][G>A][G>R]."
1010 FOR P=0 TO A:PRINT"[3CD]"SPC(4)W$(P):NEXT P
1020 PRINT"[2CD][2SPC][G>T]O ADD TO THE LIST, PRESS ANY KEY."
1030 GETK$:IFK$=""THEN1030
1040 A=A+1:GOTO500
```

Stage Three listing

```
50 REM FRENCH WORD, A PROGRAM TO RECEIVE AND PRINT WORDS IN FRENCH.
60 REM BY GEORGE PIKE. MCMLXXXIV
100 POKE53280,3:POKE53281,7:PRINT"[RED]"
190 REM THE 200 & 300 BLOCKS ARE DIFFERENT FOR THE VIC 20.  THIS IS FOR THE 64.
200 POKE53272,(PEEK(53272)AND240)+12
210 POKE52,48:POKE56,48:CLR
220 POKE56334,PEEK(56334)AND254
230 POKE1,PEEK(1)AND251
240 FORK=8TO727
250 POKE12288+K,PEEK(55296+K):NEXTK
260 POKE1,PEEK(1)OR4
270 POKE56334,PEEK(56334)OR1
300 FORI=0TO31:READA
310 POKE13280+I,A:NEXTI
320 DATA0,0,2,4,8,16,32,0,0,0,32,16,8,4,2,0,0,0,0,8,20,34,65,0
330 DATA32,32,60,4,4,124,0,0
400 DIML$(30),W$(30)
410 A$="[CU][CL][G<C][CD]"
420 B$="[CU][CL][G<X][CD]"
430 C$="[CU][CL][G<V][CD]"
440 D$="[CD][CL][G<B][CU]"
450 Y$="[CU][CL] "
460 Z$="[CD][CL] "
500 PRINT"[CLS][4CD] [G>T]YPE IN YOUR WORD."
510 PRINT"[11CD][10SPC][G>U]SE[6SPC]F1[2SPC]FOR[2SPC][G<C]."
520 PRINT"[19SPC]F3[2SPC]FOR[2SPC][G<X]."
530 PRINT"[19SPC]F5[2SPC]FOR[2SPC][G<V]."
540 PRINT"[15SPC]AND F7[2SPC]FOR[2SPC][G<B]."
800 N=1:M=1
810 GET L$(N):IFL$(N)=""THEN810
820 IFL$(N)=CHR$(133)THENL$(N)=A$
830 IFL$(N)=CHR$(134)THENL$(N)=B$
840 IFL$(N)=CHR$(135)THENL$(N)=C$
850 IFL$(N)=CHR$(136)THENL$(N)=D$
860 IFL$(N)=CHR$(13) THEN980
870 IFL$(N)=CHR$(20)ANDL$(N-1)=A$THENL$(N)=Y$
880 IFL$(N)=CHR$(20)ANDL$(N-1)=B$THENL$(N)=Y$
890 IFL$(N)=CHR$(20)ANDL$(N-1)=C$THENL$(N)=Y$
```



ANIROG
NICK-NICK!
P.C. FUZZ
Aggro at closing time at the local. Getaway car screeches to a halt outside a bank. Ingenious methods employed by the Mafia to literally spirit away the loot from the High Street. Never fear - P.C. Fuzz is on patrol.
COMMODORE 64 £7.95
Also available on Disk at £9.95
TRADE ENQUIRIES: ANIROG SOFTWARE LTD. 29 WEST HILL DARTFORD KENT (0322) 92513/8
MAIL ORDER: 8 HIGH STREET HORLEY SURREY 24 HOUR CREDIT CARD SALES HORLEY (02934) 6083
PAYMENT BY CHEQUE P.O. ACCESS/VISA 50p POSTAGE & PACKAGING

Stage Three: the principle listing is for the 64. For the Vic replacement lines are given for **lines 200-310**. The DATA lines are the same for both computers. Type in the extra lines and SAVE. With the 64 one error in the **200's** and **300's** can crash the computer and lose the lot.

In the 200- and 300- blocks, user-defined graphics create the three accents and cedilla and PEEK and POKE the 'typewriter' keyboard from ROM to RAM.

Finally RUN the program. Chaos will appear on the 64 screen and slowly bring itself to order. If there are no mistakes you will shortly be invited to 'Type in your Word'. Accents are now accents. The computer is in 'Typewriter' mode, *spades* have become **A's** and *hearts* **S's**, SHIFT produces capital letters. Your computer is Frenchified at last.

The Final Stage

French Word is not particularly useful except to show how the computer can be frenchified. The most useful programs work in pairs of words **E$(1)**, **F$(1)**, ... These are put into the computer and when all the strings have been entered the **E$'s** are displayed one by one and the French demanded. The entry is then compared to the appropriate **F$**.

So now we must type in our words in pairs. First we must tell the computer how many pairs there will be and DIMension enough strings to accept them, **lines 470** and **480**. Because we might re-run the program with a new longer list and need to CLeaR and reDIMension, all DIM statements should now be moved to **line 480**. Remove **line 400** to avoid a REDIMENSION ERROR.

Line 490 sets up a loop to take in the word pairs. **Lines 550** and **600** take them in and when this is finished, **line 610** sends us off for a test on them.

To print our entry words on different lines and make two sets of word strings calls for some changes to the **800** and **900 blocks**. Thus **line 800** becomes:

800 W$=""N=1:M=1

We need an empty word string in which to build our word. The contents of **W$** are transferred to the string to be stored once the program has RETURNed.

```
900 IFL$(N)=CHR$(20)ANDL$(N-1)=D$THENL$(N)=Z$
910 PRINT"[HOM][8CD]"SPC(M+2)L$(N)
920 IFL$(N)<>A$ANDL$(N)<>B$ANDL$(N)<>C$ANDL$(N)<>D$THEN M=M+1
930 IFL$(N)=CHR$(20) THEN N=N-2:M=M-2:GOTO950
940 IFL$(N)=V$ORL$(N)=Z$THEN N=N-2:M=M-1
950 IFN<1 THEN N=0
960 IFM<1THEN M=1
970 N=N+1:GOTO810
980 FOR D=1 TO N-1:W$(A)=W$(P)+L$(D):NEXT D
1000 PRINT"[CLS][2CD][3SPC][G>A] [G>L][G>I][G>S][G>T] [G>O][G>F] [G>Y][G>O][G>U]
[G>R] [G>W][G>O][G>R][G>D][G>S] [G>S][G>O] [G>F][G>A][G>R]."
1010 FOR P=0 TO A:PRINT"[3CD]"SPC(4)W$(P):NEXT P
1020 PRINT"[2CD][2SPC][G>T]O ADD TO THE LIST, PRESS ANY KEY."
1030 GETK$:IFK$=""THEN1030
1040 A=A+1:GOTO500
```

Vic replacement lines for Stage 3

```
200 POKE 51,255:POKE52,19:POKE55,255:POKE56,19
210 FORK=7 TO 727
220 POKE5120+K, PEEK(34816+K):NEXT
300 FORI=0 TO 31: READA
305 POKE6112+1,A:NEXT I
310 POKE36869,253
320 REM FOLLOWS 64 PROGRAM
```

FINAL LISTING

```
50 REM TEST YOUR FRENCH. A SIMPLE FRENCH VOCABULARY PROGRAM.
60 REM BY GEORGE PIKE. MCMLXXXIV
100 POKE53280,3:POKE53281,7:PRINT"[RED]"
190 REM THE 200 & 300 BLOCKS ARE DIFFERENT FOR THE VIC 20.  THIS IS FOR THE 64.
200 POKE53272,(PEEK(53272)AND240)+12
210 POKE52,48:POKE56,48:CLR
220 POKE56334,PEEK(56334)AND254
230 POKE1,PEEK(1)AND251
240 FORK=8TO727
250 POKE12288+K,PEEK(55296+K):NEXTK
260 POKE1,PEEK(1)OR4
270 POKE56334,PEEK(56334)OR1
300 FORI=0TO31:READA
310 POKE13280+I,A:NEXTI
320 DATA0,0,2,4,8,16,32,0,0,0,32,16,8,4,2,0,0,0,0,8,20,34,65,0
330 DATA32,32,60,4,4,124,0,0
410 A$="[CU][CL][G<C][CD]"
420 B$="[CU][CL][G<X][CD]"
430 C$="[CU][CL][G<V][CD]"
440 D$="[CD][CL][G<B][CU]"
450 Y$="[CU][CL] "
460 Z$="[CD][CL] "
470 PRINT"[CLS][7CD][2SPC][G>A] PROGRAM TO TEST FRENCH VOCABULARY."
480 INPUT"[4CD][3SPC][G>H]OW MANY WORD PAIRS";QN:DIME$(QN),F$(QN),L$(30),TN(QN)
490 FORTW=1TOQN
500 PRINT"[CLS][4CD] [G>T]YPE IN THE [G>E]NGLISH.":F=3
510 PRINT"[11CD][10SPC][G>U]SE[6SPC]F1[2SPC]FOR[2SPC][G<C],"
520 PRINT"[19SPC]F3[2SPC]FOR[2SPC][G<X],"
530 PRINT"[19SPC]F5[2SPC]FOR[2SPC][G<V],"
540 PRINT"[15SPC]AND F7[2SPC]FOR[2SPC][G<B]."
550 GOSUB800
560 E$(TW)=W$
570 PRINT"[2CD][2SPC][G>N]OW THE [G>F]RENCH.":F=6
580 GOSUB800
590 F$(TW)=W$
600 NEXT TW
610 GOTO2000
800 W$="":N=1:M=1
810 GET L$(N):IFL$(N)=""THEN810
820 IFL$(N)=CHR$(133)THENL$(N)=A$
830 IFL$(N)=CHR$(134)THENL$(N)=B$
840 IFL$(N)=CHR$(135)THENL$(N)=C$
850 IFL$(N)=CHR$(136)THENL$(N)=D$
860 IFL$(N)=CHR$(13) THEN980
870 IFL$(N)=CHR$(20)ANDL$(N-1)=A$THENL$(N)=Y$
880 IFL$(N)=CHR$(20)ANDL$(N-1)=B$THENL$(N)=Y$
890 IFL$(N)=CHR$(20)ANDL$(N-1)=C$THENL$(N)=Y$
```


THE OFFICIAL
Eddie Kidd
JUMP
CHALLENGE
If you've ever wondered how it feels to be Eddie Kidd . . . defying danger and gravity, soaring on a motor-bike over a long line of cars . . . here's your chance to find out!
This fabulous new game – Jump Challenge – has been produced for you by Martech, with a lot of help from Eddie himself.
At the age of 12, Eddie Kidd was jumping over oil barrels on a bicycle. At 18, he shattered the world record with his astounding leap of 190 feet – clearing 14 double-decker buses. Can you match his skill, courage, control and ice-cool nerve? Jump Challenge will show how you compare with the King of Motor-Cycle Stunts!
Just like Eddie, you'll start by trying to clear barrels on a bicycle . . . gradually working up to attempting Eddie's daring leaps which have thrilled millions around the world!
☐ 100% machine code
☐ separate control of bike and rider for incredible realism
☐ dangerous headwinds for added difficulty
☐ scoring system – for successful jumps
☐ joystick or keyboard option
☐ PLUS!!! You can enter the Official International Jump Challenge Competition! Details on cassette insert
Available from leading software retailers OR order today by mail, price £6·95 (48K Spectrum) or £7·95 (Commodore 64, BBC 'B', & Electron) including VAT and P&P. Please make cheque or postal order payable to Software Communications Ltd. Allow 7 days for delivery.
SPECTRUM
SPECTRUM
CBM 64
martech
Martech is the registered trade mark of Software Communications Limited
Martech House, Bay Terrace, Pevensey Bay, East Sussex BN24 6EE
TRADE ENQUIRIES WELCOME. PHONE: (0323) 768456 TELEX: 87465 EXIM Brighton
48K SPECTRUM · COMMODORE 64 · BBC 'B' · ELECTRON


synsoft presents...
The World's Greatest Games!
Selected Titles available soon for Spectrum
64 ATARI
The Unsurpassable Experience.
synsoft
The Official ZAXXON
Play one of the most challenging arcade games on your C-64 computer. ZAXXON's incredible 3-D graphics, diagonally scrolling screen and super sound are reproduced in great detail. Hang onto your joystick, keep firing and practice. You may eventually encounter the deadly Zaxxon himself!
DRELBS
Your Drelb builds glowing squares, but his enemies knock them down. And if you let them they'll even gobble up your lovable Drelb. Quick reflexes, intelligence and strategy are a must for this addictive change-of-pace game.
SENTINEL
Exciting 3-D action! The most realistic point-of-view game you've ever played! Navigate through asteroid belts, destroy enemy ships, track their battle-stars through intergalactic minefields. Now can you prevent the enemy capturing your planet?
BLUE MAX
Shoot down enemy planes, bomb targets, strafe tanks . . . there's constant action on the incredible 3-D scrolling screen. You must master a series of flying skills and perform them with pinpoint accuracy. One slip and you've lost it all! Happy landings, ace!
FORT APOCALYPSE
Play this multi-level extravaganza three different ways. Fire on vile enemies, navigate deadly hazards, rescue 18 trapped friends, make your way through treacherous caves! Super graphics, unnerving sounds and constant scrolling screen.
synsoft
U.S. GOLD All American Software
CASSETTE £9.95
DISK £14.95
THE ULTIMATE IN AMERICAN SOFTWARE FOR YOU ON U.S. GOLD
U.S. Gold is stocked by all leading computer stores including:
Boots John Menzies WHSMITH WILDINGS WOOLWORTH
U.S. Gold Ltd., Unit 24, Tipton Trading Estate, Bloomfield Road, Tipton, West Midlands DY4 9AH Telephone: 021-520 7591. Telex: 337268.

Line 910 becomes two lines:

905 PRINT (HOM)
910 FOR PD = 1 TO F: PRINT"(CUD)": NEXT PD: PRINT SPC(M+2)L$(N)

Finally **line 980** becomes:

980 FOR D = 1 TO N−1: W$=W$+L$(D):NEXT D: RETURN

The word pairs are now installed. Now for the test. **Line 610** has sent us on our way. **Lines 1000** to **1040** are no longer needed. **Lines 2000** to **2110** are the test. **2010** chooses the pair for each question, **2020** and **2030** make sure we haven't had that pair before. Each pair then is included once and only once in random order. Lines **3000** to the end give simple options to end, re-test or start a new test.

This is simply a skeleton for a French test. One obvious area for development is in responding to wrong answers. There are all sorts of possibilities to include time, scoring how many right first time, keep a record of the best time and name the current champion (watch CLR and DIM for that one). It all makes good use of the computer and may even lighten your chores. Bon chance.

```
900 IFL$(N)=CHR$(20)ANDL$(N-1)=D$THENL$(N)=Z$
905 PRINT"[HOM]"
910 FORPD=1TOF:PRINT"[CD]":NEXTPD:PRINTSPC(M+2)L$(N)
920 IFL$(N)<>A$ANDL$(N)<>B$ANDL$(N)<>C$ANDL$(N)<>D$THEN M=M+1
930 IFL$(N)=CHR$(20) THEN N=N-2:M=M-2:GOTO950
940 IFL$(N)=Y$ORL$(N)=Z$THEN N=N-2:M=M-1
950 IFN<1 THEN N=0
960 IFM<1THEN M=1
970 N=N+1:GOTO810
980 FORD=1TON-1:W$=W$+L$(D):NEXTD:RETURN
2000 FORTQ=1TOQN
2010 TN(TQ)=INT(RND(TI)*QN+1):IFTQ=1THEN2040
2020 FORCW=1TOTQ-1:IFTN(TQ)=TN(CW)THEN2010
2030 NEXTCW
2040 PRINT"[CLS][2CD][2SPC][G>Q]UESTION NO."TQ:IFWA=0THENPRINT"[3CD]"
2050 IFWA=1 THEN PRINT"[2CD][2SPC][G>W]RONG, TRY AGAIN."
2060 PRINT"[2CD][3SPC]"E$(TN(TQ))
2070 PRINT"[CD][2SPC][G>W]HAT IS THE [G>F]RENCH?":F=6
2080 GOSUB800
2090 IFW$=F$(TN(TQ))THENWA=0:GOTO2110
2100 WA=1:GOTO2040
2110 NEXTTQ
3000 PRINT"[CLS][3CD][2SPC][G>A]NOTHER GO?[3SPC][G>Y]/[G>N].[3CD]"
3010 GETJ$:IFJ$=""THEN3010
3020 IFJ$<>"Y"ANDJ$<>"N"THEN3010
3030 IFJ$="N"THENCLR:GOTO470
3040 PRINT" [G>P]RESS '[G>S][G>P][G>A][G>C][G>E]' FOR THIS SET AGAIN OR ANY OTHE
R KEY FOR A NEW LIST."
3050 GETK$:IFK$=""THEN3050
3060 IFK$=" "THEN2000
3070 CLR:GOTO480
```



Keybeep

by Fred Reid

This program produces an audible bleep from your TV whenever you press a key on your Commodore 64. This is particularly useful when copying software from magazines; you don't have to look at the screen to verify that you actually pressed a key. As each key produces a different tone, you can soon get to recognise a wrong keystroke.

The routine runs entirely in machine code, and is located at $C000 (49152 decimal), and occupies only 120 bytes – so it's small enough to insert into your own programs.

The machine code program is split into two parts. The first part is used to set up the SID chip, and change the interrupt vectors to point to the second routine at $C037. The second routine examines the current key being pressed, and uses it's ASCII value to provide the pitch information for the SID chip. If a key is being pressed, the Gate bit ($D404) is flipped on, then off, to start the note. The routine then jumps to where the interrupt vector originally pointed to (before the first routine altered it), and the computer continues as if nothing had happened.

When run, the Basic loader reads the DATA statements, and POKEs them into RAM. When this is done, the initialising routine is called by **SYS49152**, and the Basic loader is NEWed. At this point the beep can be enabled by pressing **f1**. Pressing **f3** will turn off the beep. If you press RUN/STOP and RESTORE, the routine will have to be re-initialised (SYS49152) before it will work again.

– Assembler listing

```
C000   78          SEI
C001   AD 14 03    LDA $0314
C004   8D 2E 03    STA $032E
C007   AD 15 03    LDA $0315
C00A   8D 2F 03    STA $032F
C00D   A9 37       LDA #$37
C00F   8D 14 03    STA $0314
C012   A9 C0       LDA #$C0
C014   8D 15 03    STA $0315
C017   A2 18       LDX #$18
C019   A9 00       LDA #$00
C01B   9D 00 D4    STA $D400,X
C01E   CA          DEX
C01F   D0 FA       BNE $C01B
C021   A9 05       LDA #$05
C023   8D 05 D4    STA $D405
C026   A9 00       LDA #$00
C028   8D 06 D4    STA $D406
C02B   A9 0F       LDA #$0F
C02D   8D 18 D4    STA $D418
C030   A9 00       LDA #$00
C032   8D 34 03    STA $0334
C035   58          CLI
C036   60          RTS
C037   A5 C5       LDA $C5
C039   C9 04       CMP #$04
C03B   F0 07       BEQ $C044
C03D   C9 05       CMP #$05
C03F   F0 0B       BEQ $C04C
C041   4C 54 C0    JMP $C054
C044   A9 FF       LDA #$FF
C046   8D 34 03    STA $0334
C049   6C 2E 03    JMP ($032E)
C04C   A9 00       LDA #$00
C04E   8D 34 03    STA $0334
C051   6C 2E 03    JMP ($032E)
C054   AD 34 03    LDA $0334
C057   C9 FF       CMP #$FF
C059   F0 03       BEQ $C05E
C05B   6C 2E 03    JMP ($032E)
C05E   A5 C5       LDA $C5
C060   C9 40       CMP #$40
C062   D0 08       BNE $C06C
C064   A2 20       LDX #$20
C066   8E 04 D4    STX $D404
C069   6C 2E 03    JMP ($032E)
C06C   8D 01 D4    STA $D401
C06F   A9 21       LDA #$21
C071   8D 04 D4    STA $D404
C074   6C 2E 03    JMP ($032E)
```

– Basic loader

```
1 REM        ### KEYBEEP ###
2 :
3 REM      ### BY FRED REID ###
4 :
5 REM        ### [C] 1984 ###
6 :
7 REM     ### F1=ON....F3=OFF ###
8 :
9 :
10 DATA120,173,20,3,141,46,3,173
20 DATA21,3,141,47,3,169,55,141
30 DATA20,3,169,192,141,21,3,162
40 DATA24,169,0,157,0,212,202,208
50 DATA250,169,5,141,5,212,169,0
60 DATA141,6,212,169,15,141,24,212
70 DATA169,0,141,52,3,88,96,165
80 DATA197,201,4,240,7,201,5,240
90 DATA11,76,84,192,169,255,141,52
100 DATA3,108,46,3,169,0,141,52
110 DATA3,108,46,3,173,52,3,201
120 DATA255,240,3,108,46,3,165,197
130 DATA201,64,208,8,162,32,142,4
140 DATA212,108,46,3,141,1,212,169
150 DATA33,141,4,212,108,46,3,255
200 FORI=0TO119:READA
210 POKEI+49152,A:NEXTI
220 SYS49152
230 NEW:END

READY.
```

Print cassette tape covers

by Albert van Aardt

One of the handiest applications I have found for my 64 and the printer is to print covers for my cassette tapes. As I have a few tapes (over a hundred, in fact), I decided to write a program to produce neat covers for them.

It just so happens that the 40x25 line screen is exactly the size of a cassette cover when printed on my Seikosha 100VC (aka Commodore 1525). How's that for unplanned standardisation? Of course, the program can be adapted to format, change and print any screen.

Lines 100 to 300 give the basic layout – you can change it to suit your own ideas. The POKE2023,125 in line 300 is merely to place a "┘" symbol in the bottom right hand corner, so as to avoid the line feed of PRINTing it.

Lines 10 to 15 are the 'cursor' routine. The current position is PEEKed and the character is stored in C; then a block is POKEd in the same position, followed again by the character. This causes the cursor to flicker.

Lines 22 to 40 check the cursor controls; lines 60 to 80 put the character entered on to the screen. Line 21 checks to see if F1 was pressed; if so, control is passed to subroutine 10000 to print the screen.

I have found it very handy and neat to have all my tapes with uniform covers. If any changes, I simply run the program again and type in the new names.

Just one other thing: no provision has been made for Insert and Delete – you have to re-type the whole line if you made a mistake. This is not as bad as it sounds, because it is, at the most, only 40 characters.

```
1 POKE650,255:X=1:S=0:K=54272
2 PRINT"[]"; :REM       GOTO1000
3 GOSI  100
10 GET A$
11 P=1023+X:C=PEEK(P):POKE(P),102:POKE(K+P),1:POKE(P),C
15 IFA$=""THEN10
20 A=ASC(A$)
21 IFA=133THENGOSUB10000:GOTO10
22 IFA=145THENX=X-40:S=1
25 IFA=157THENX=X-1:S=1
26 IFA=13THENX=X+40:S=1
30 IFA=17THENX=X+40:S=1
35 IFA=29THENX=X+1:S=1
37 IFX<1ORX>1000THENX=1
40 IFS>0THENS=0:GOTO10
60 IFA>63ANDA<96THENA=A-64
62 IFA>31ANDA<64THENGOTO70
64 IFA>96ANDA<128THENA=A-32
66 IFA>159ANDA<192THENA=A-64
70 REM
72 IFX<1ORX>1000THENX=1
73 P=(1023+X)
75 POKE(P),A:POKE(K+P),1
76 X=X+1
80 GOTO10
100 PRINT"┌──────────────────┬───────────────────┐";
110 PRINT"|------- A --------|--------- B -------|";
120 PRINT"| 1)               | 1)                |";
130 PRINT"| 2)               | 2)                |";
135 PRINT"| 3)               | 3)                |";
140 PRINT"| 4)               | 4)                |";
145 PRINT"| 5)               | 5)                |";
150 PRINT"| 6)               | 6)                |";
160 PRINT"| 7)               | 7)                |";
165 PRINT"| 8)               | 8)                |";
170 PRINT"| 9)               | 9)                |";
175 PRINT"|10)               |10)                |";
185 PRINT"|11)               |11)                |";
190 PRINT"|12)               |12)                |";
200 PRINT"|13)               |13)                |";
210 PRINT"├──────────────────────────────────────┤";
215 PRINT"|NO:..|SIDE A: ........................|";
225 PRINT"|TYPE.|SIDE B: ........................|";
230 PRINT"├──────────────────────────────────────┤";
240 PRINT"|14)               |14)                |";
250 PRINT"|15)               |15)                |";
260 PRINT"|16)               |16)                |";
270 PRINT"|17)               |17)                |";
280 PRINT"|18)               |18)                |";
290 PRINT"└──────────────────────────────────────";
300 POKE2023,125:POKE56295,1
399 RETURN
10000 AZ$="":OPEN4,4:LZ=1024:FORLZ=LZTO2023STEP40:FORIZ=LZTOLZ+39:ZZ=PEEK(IZ)
10020 IFZZ<96ANDZZ>63THENZZ=ZZ+32:GOTO10040
10025 IFZZ<32THENZZ=ZZ+64:GOTO10040
10026 IFZZ<128ANDZZ>96THENZZ=ZZ+64:GOTO10040
10030 IFZZ<128ANDZZ>96THENZZ=ZZ+64
10040 ZZ$=CHR$(ZZ):AZ$=AZ$+ZZ$:NEXTIZ
10050 IFAZ$="                                        "THENPRINT#4,"":GOTO10060
10055 PRINT#4,AZ$
10060 AZ$="":NEXTLZ:CLOSE4:RETURN

READY.
```

CHART UPDATE

OCTOBER

CBM64

1	(–)	Decathlon	Activision
2	(1)	Beach Head	US Gold
3	(3)	Arabian Nights	Interceptor
4	(–)	Micro Olympics	Database
5	(–)	Daley's Decathlon	Ocean
6	(4)	Encounter	Novagen
7	(8)	Loco	Alligata
8	(–)	International Soccer	Commodore
9	(7)	Blagger	Alligata
10	(2)	Valhalla	Legend
11	(11)	Solo Flight	US Gold
12	(14)	Son of Blagger	Alligata
13	(15)	Caverns of Khafka	US Gold
14	(–)	Strip Poker	US Gold
15	(13)	Manic Miner	Soft Projects
16	(5)	Cavelon	Ocean
17	(–)	Trashman	N Generation/QS
18	(–)	Hovver Bovver	Llamasoft
19	(–)	Wimbledon 64	Merlin
20	(–)	Forbidden Forest	US Gold

TOP 3 MANUFACTURERS:

US GOLD
ALLIGATA
ACTIVISION

VIC-20

1	(1)	Flight Path 737	Anirog
2	(6)	Vegas Jackpot	Mastertronic
3	(3)	Chariot Race	Microantics
4	(20)	Punchy	Mr Micro
5	(–)	Undermine	Mastertronic
6	(-)	Hell Gate	Llamasoft
7	(17)	Sub Hunt	Mastertronic
8	(–)	Max	Anirog
9	(16)	Wiz and Princess	Melbourne
10	(11)	Duck Shoot	Mastertronic
11	(–)	Tower of Evil	Creative Sparks
12	(–)	Computer War	Creative Sparks
13	(2)	Jet Pac	Ultimate
14	(19)	Luv Bug	Thor
15	(8)	Bongo	Anirog
16	(–)	Matrix	Llamasoft
17	(–)	Minitron	Anirog
18	(4)	Arcadia	Beau-Jolly
19	(5)	Flight 015	Ferranti
20	(9)	Tank Commander	Creative Sparks

TOP 3 MANUFACTURERS:

MASTERTRONIC
ANIROG
CREATIVE SPARKS

COMPILED BY RAM/C, LONDON
Data represents August sales from 250+ specialist retailers

Llamasoft

ORIGINAL SOFTWARE DESIGN

49 MOUNT PLEASANT, TADLEY, HANTS. RG26 6BN.





TRAXX	HELL GATE	METAGALACTIC LLAMAS BATTLE	ABDUCTOR	MATRIX	LASERZONE	GRIDRUNNER	SHEEP IN SPACE	HOVER BOVVER	ATTACK OF THE MUTANT CAMELS	REVENGE OF MUTANT CAMELS
VIC 20 LLA 12003 £5.00	VIC 20 LLA 12007 £6.00 CBM 64 LLA 21008 £5.00	VIC 20 LLA 11006 £5.50 CBM 64 LLA 21010 £5.50	VIC 20 LLA 11001 £5.00	VIC 20 LLA 12005 £5.00 CBM 64 LLA 21006 £6.00	VIC 20 LLA 12004 £5.00 CBM 64 LLA 21004 £6.00	VIC 20 LLA 11002 £5.00 CBM 64 LLA 21003 £5.00 ATARI LLA 41001 £5.00	CBM 64 LLA 21009 £7.50	CBM 64 LLA 21005 £7.50	CBM 64 LLA 21001 £6.00 ATARI LLA 41003 £7.50	CBM 64 LLA 21007 £7.50

Packing & Postage 50p

GSH WOOLWORTH W H SMITH Boots John Menzies Access

Packing & Postage 50p

DEALERS may order direct from CBS Telesales 01-960 2155 quoting account number, LLA code number and quantities. Goods delivered within 48 hours.

Introducing MusiCalc™

The Creative Music System

MAKE MUSIC PLAY
On Your Commodore 64™

Put the MusiCalc™ diskette into your Commodore 64. Sit down. And brace yourself.

You're about to discover an entirely new way to make music. With MusiCalc, the creative music system that makes music play. Almost instantly, the whole family will be able to create and perform all kinds of music. From rock 'n roll to technopop, from classical to country western.

MusiCalc makes music more fun, more rewarding and easier than it's ever been before.

NOTEWORTHY SOFTWARE

MusiCalc software turns your Commodore 64 computer with disk drive into a sophisticated musical instrument. And it turns you into a composer, performer and conductor.

MusiCalc 1's Synthesizer & Sequencer is the heart of the system. With it, you can use your computer keyboard to program the tempo, key and style of music you want, and also to play your favorite tune. The computer screen will show you what the music's doing as you play and how to control it.

Start by selecting one of MusiCalc's preset scores. Try combining that with a preset sound you like. Choose the scale you want to play in – anything from jazz to Japanese.

Presto! You've got music.

Exercise your musical creativity by putting the three voices together any way you want, and playing whichever parts you'd like. Make changes and add special flourishes to create your own compositions.

Even a musical novice will sound good right away. And the greater your musical talent, the more challenging and exciting MusiCalc becomes.

BACH TO BASICS

Although simple to learn, MusiCalc was designed to meet the needs of professional musicians. In fact, it delivers the quality and capabilities professionals have spent thousands of dollars for – up until now. Once you have the Commodore 64 computer and disk drive, you can get started for under $100 with the MusiCalc 1 Synthesizer & Sequencer.

This is a standalone software program you'll never outgrow. And with the variety of other MusiCalc products currently available, plus the many more items Waveform will be introducing in the months ahead, you can expand your music system along with your interest and ability.

THE MUSICALC SYSTEM

MusiCalc includes a full line of software that brings great music as close as the keypad of your Commodore 64.

MUSICALC 1, Synthesizer & Sequencer Turns the Commodore 64 into a sophisticated musical instrument – a three-voice synthesizer and fully-interactive step sequencer. Play along with a song or write your own. Develop your own instrument sounds. And record the music you create.



MUSICALC 2, Score Writer™ Works with the Synthesizer & Sequencer to change you musical improvisations into musical notation. With the addition of an optional graphics printer you can turn your



own original compositions into sheet music. Requires MusiCalc 1 to operate.

MUSICALC 3, Keyboard Maker™ Enables you to create your own custom musical keyboards. Comes with over 30 preset keyboard scales from around the world – everything from classical to rock. Requires MusiCalc 1 to operate.

MUSICALC TEMPLATE 1, African and Latin Rhythms Add this to the MusiCalc 1 system and it provides additional musical scores and patches you can play along with or use to develop your own compositions. Requires MusiCalc 1 to operate.

MUSICALC TEMPLATE 2, New Wave and Rock Works like Template 1 and features the latest Technopop scores and sounds. Requires MusiCalc 1 to operate.

MUSICALC PROFESSIONAL SYSTEM The MusiCalc Synthesizer & Sequencer, ScoreWriter, and Keyboard Maker, plus the two Templates, in one cost-saving package.

HIT DISKS Recordings to play on your computer. Original Technopop compositions, current hits and old standards performed by the Waveform Band. Ask your dealer about current releases.

COMING SOON: MusiCalc UK is already working on all-British additions to the family. Like more Templates for rock, jazz, funk, disco... the Drumulator drum rhythm Template (play along with your own melody)... the MIDI interface to link your 64 and MusiCalc to a synthesizer...a choice of real piano-style keyboards (target price a maximum of £90!)...**and the cartridge MusiCalc should be available for Christmas!**

DEMO DISK An entertaining and informative demonstration of the capabilities, features and uses of the entire MusiCalc System. Also available in tape cassette.

MAKE MUSIC PLAY

MusiCalc will make music come alive for the entire family. It's a fun and educational way to introduce your children to music and computers. And no matter what your background, you'll find yourself playing and understanding music in an exciting new way.

Buy direct from us: or ask your computer or music dealer about MusiCalc. Or send £5 for the MusiCalc Demo Disk. Discover MusiCalc, the creative music system.

waveform
CORPORATION
MUSIC PRODUCTS DIVISION
MAKING MUSIC



• • MAY WICO BE WITH YOU • •



When you're up against all the evil in the universe, you need the finest joystick. Weak, sticky, slow controls can only lead you to your doom.

You need a Wico.® The controls in more than 500 modern arcade games are actually made by Wico.® They set the industry standard for durability and performance. And the same arcade quality goes into the Wico® you take home.

Wico® joysticks work directly with the Commodore 64,™ Vic 20,™ all Atari® Home Computers and Atari® Video Games.

Add an interface, and you can connect into a Sinclair Spectrum or Apple II® and IIe.® If you have a new MSX computer there's the just released MSX Grip Handle for you.

What do you get? A man-sized handle on a virtually unbreakable shaft. Tough, ultra-sensitive Wico® switchgear. A heavy-weight base. A year's guarantee. And more sheer dodging, chasing and blasting power than ever before.

The Wico® range includes the famous Red Ball,™ straight out of the arcades. The Three Way Deluxe with interchangeable handles. The light but rugged Boss. And check out the state-of-the-art Trackball: many owners use it for serious programming, where it gives them effortless cursor control.

Ask your dealer to let you handle a Wico.® Quality (you'll find) costs money.

But if you want to have less trouble fighting your controls, and more power for fighting the forces of darkness . . . only Wico® is worthy of your hand.



WICO®

THE FINEST HAND CONTROLS IN THE KNOWN UNIVERSE

CGL HOUSE, GOLDINGS HILL, LOUGHTON, ESSEX IG10 2RR. 01-508 5600. LOOK FOR THE WICO NAME IN ALL GOOD SHOPS AND CATALOGUES.

Database flies on to disk

Micro Magpie reviewed

by Karl Dallas

The Magpie database for the Commodore 64 was originally written as a cartridge-based program, and very powerful it was too. Not cheap of course, but still worth the money – even at just 5p under £100.

Now Magpie's supplier, Audiogenic, has released a version of Magpie on disk. Called Micro Magpie, it costs just £39.95 which makes it probably the best value database on the market. Karl Dallas has been putting it through its paces.

The advantage of cartridges, of course, is speed, and if the disk version of Magpie had to constantly access disk, the money saving would be more than offset by the loss in convenience. But the program (16K of it) is held entirely in memory, and after it has been LOADed (taking about 45 seconds), it is no slower in operation than the cartridge version.

If you're the sort of person who's so anxious to get to work that you can't spare that much time, then it's probably worth £60 to you to get the cartridge, but otherwise I can see the disk version of Magpie sweeping all before it.

Despite the "Micro" label, which might suggest some kind of diminutive, the new version is actually more powerful than the original, especially in the search parameters.

Basics

Magpie is entirely menu-based, which is great for the beginner, because all the available options are made available to you every time you want to make a choice. You even use menus to employ the 'procedures', or programming language, which allows the user to personalise the way a database is used, and make it even easier for the non-technical assistant or secretary to access.

The drawback of menus, help-screens and other user-friendly devices, is that as you get into the way they work, you no longer need so much help, and the program becomes rather like a kind of fussy aunt, always at your shoulder being more helpful than you need.

The more sophisticated programs will offer you different levels of help as you progress in experience, so that you can avoid this syndrome, but it would be unreasonable to expect a £40 program to be that flexible.

There are a total of 23 menus, which are arranged on a tree structure from the opening five-option menu.

In addition to its work as a database, Magpie contains lo-res graphing capabilities, either from typed-in data or by taking data from files. And it comes with two sample programs: a simple mailing list (which for obvious reasons all databases usually take as an example), and a more complex stock control application, including the processing of invoices, purchase orders and credit notes.

Setting up

The program is LOADed in the normal way by typing:

LOAD"*",8,1

which LOADs and RUNs the loader, and consequently the main program file. A title 'page' is displayed during the LOAD, and the user is asked if a single 1541 disk drive is used. If 'no', the program assumes daisy-chained 1541s, allocated device 8 and device 9, though it can access the more powerful (eg 4050, 8050, 8250) business double drives via an Interpod. But the use of IEEE cards in the cartridge slot is advised against, because they use some of the available memory.

Then the user is asked if a serial printer is to be used ('no' assumes a Centronics-type parallel printer).

The opening menu offers the following options:

- Run Procedure
- Use Calculator
- Get System
- Create System
- Load and Run

Whatever option is chosen, the new menu pops up (in a different colour), overlaid on the previous menu, so that if 'Create System' is chosen for example, and then 'Edit Form' from the Create System menu, the previous two menus can still be seen.

Menu options are chosen by using the function keys: F1 moves to the top of the menu, F3 to the previous option, F7 to the next option and F5 is delineated the 'go' key. The <RETURN> key is disabled. I can't understand why they didn't use it, thereby freeing F5 for a different function, but there you are. Apart from the opening menu, the top option is always "EXIT", which returns you to the previous menu.

Up and running

The calculator facility is not remarkably powerful, performing simple arithmetical (plus, minus, multiplication, division, square root) from left to right on up to 26 variables. Brackets cannot be used to supercede the left-to-right order for calculations. Nor can the variables be assessed from within the rest of the program.

Each record can consist of up to two forms, the first limited to one screen (24 lines of 40 characters, including field names), the second any variant of 66 lines of 80 characters (eg 132 lines of 40 characters). The cartridge Magpie forms were both 66x80 – one of the few places where the Micro version is less powerful than the original.

The second form is also used for reports on the database.

Alphanumeric field data areas are defined by typing in capital letters, for example AAAAAAAAAA or BBBBBBBBBB; and numeric fields (such as telephone numbers) by small letters – aaaaaaaaaa or bbbbbbbbbb.

Maximum record length is 960 characters including field names on the 24x40 form, or 5280 on the 66x80 form. That means you can have up to 26 alpha fields and 26 numerical fields on any record form. Each field can be up to 255 characters long.

So a typical mailing list form might have the following layout:

Name:	NNNNNNNNNN
Address:	AAAAAAAAAA
	AAAAAAAAAA
Town:	TTTTTTTTTT
County:	CCCCCCCCCC
Postcode:	PPPPPPPPPP
Telephone:	tttttttttt
Remarks:	RRRRRRRRRR
	RRRRRRRRRR

Save and search

Form layouts can be saved to disk, and all the existing names can be listed, either to replace them, or avoid accidental over-writing.

Systems can be password protected, though this can create problems, not so much in forgetting passwords (it's a good idea to use something fairly unforgettable, such as your own name), but because it's also possible to get locked out of a system by an 'invalid password' error message when you want to do something new. It happened to me.

Searching for records is not as easy as with some other databases. For instance, in *Superbase*, sequential searches on key fields or matches are available from a top-of-the-screen menu, but this is only possible because the very powerful 'procedures' language is used.

This takes time to learn, but since the most frequently needed procedures are fully documented, and learning procedures is actually the best way of getting the most out of the system, this is a necessary and valuable chore.

Procedures

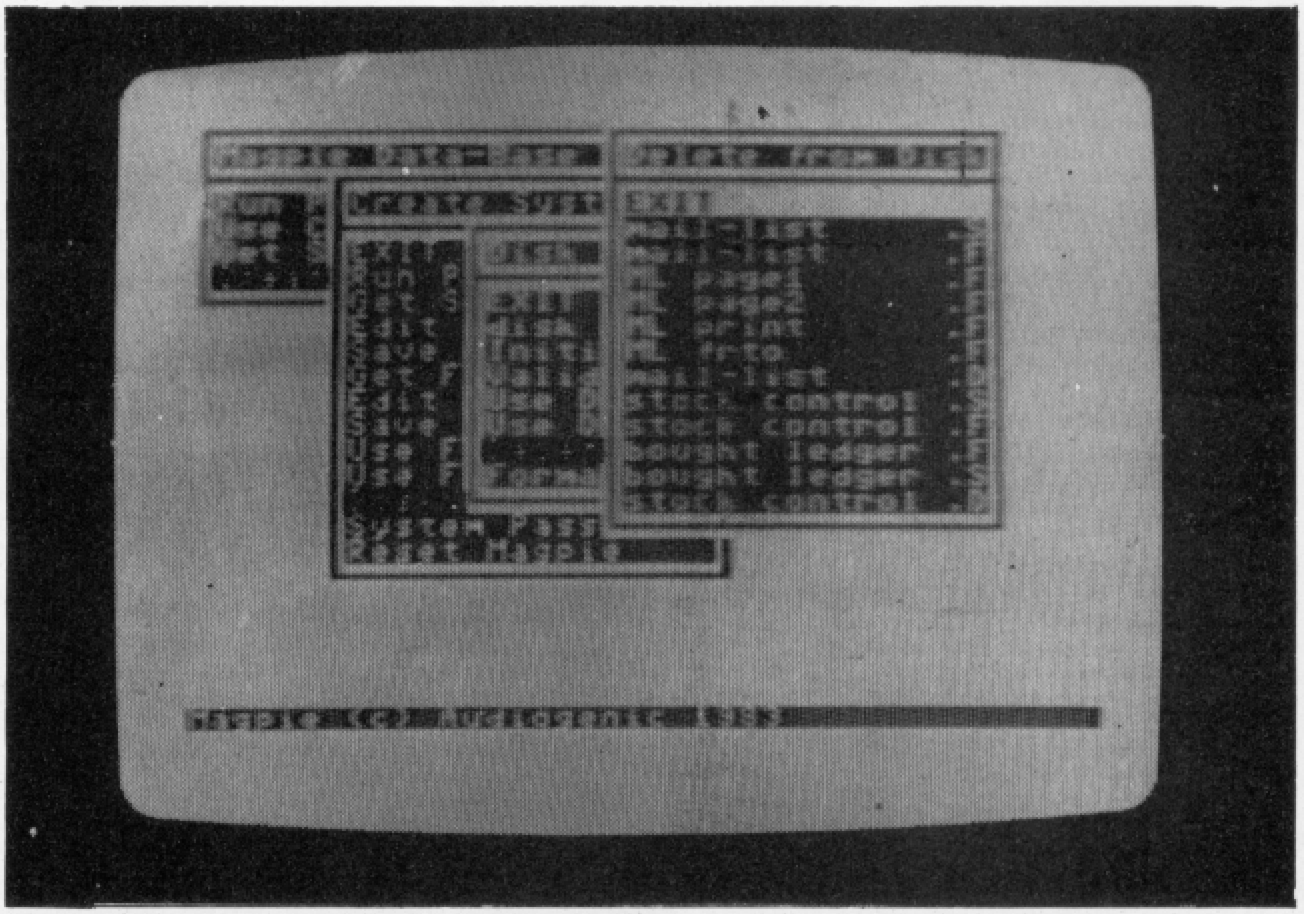
A procedure is created from the 'Edit Procedures' option of the 'Create System' menu. The left-hand side of the screen is cleared for the creation of text, and menus are displayed on the right half. First the name of the procedure must by typed in, preceded by a *single* quote, eg **'search**. Sub-procedures (ie subroutines) are named with a double-quote opening, eg **"modify**.

Other commands can be menu-selected, even the names of forms to be accessed, which come up from the disk directory on the 'Select Form/File' menu. This is an almost foolproof way of programming, though the exact wording of the commands may seem strange to those raised on Basic, which can result in the following sort of sequence for a yes/no choice:

Enter Yes or No
Enter Another?
If no skip

A search procedure is fairly self-explanatory:

Thus it will be seen that in a 17-line program, only two items, the name of the procedure and the prompt, have to be typed in. The rest are generated automatically either directly from menus, or from disk directories scanned from within a menu.



Documentation

The cartridge Magpie was brilliantly documented, with all the various help screens, menus reprinted in full and presented in a tough ring binder.

Disregarding that well-known maxim, "If it ain't broke, don't fix it", they've rewritten the manual for the disk version, and used it to replace the documentation for the cartridge version, too.

Fortunately, though it's presented in a totally different way, the new manual is good, too. The old one wasn't indexed, a cardinal sin in my book, but I found it fairly easy to get around despite this significant lack.

The new one wasn't printed at review time, and I had to work from some advance proofs, so there may be an index in the finished book. However, I found it harder to get around without one.

The stock control system is more than adequately documented, making it fairly easy for the user to adapt for specific needs.

COMMAND	EXPLANATION
'Search	procedure title
Name & Address .D	data file to be used
Search .F	form name to be used
enter fields	menu commands for entry of search parameters
begin	menu command to begin search loop
get record	menu command to examine record
match fields	menu command to compare record
if found skip	menu command to skip next commands
next record	menu command to examine next record
if filend skip	menu command for end of file
repeat	menu command to continue search
continue	menu command to continue procedure
Enter Yes or No	menu command for following parameter
Is this the one?	typed-in question
if yes skip	menu command to cease search if found
repeat	menu command to continue search
End of procedure	menu command to end program

Conclusions

I hate to play off one program against another, but it was inevitable that I compare it with *Superbase*, despite the (now) disparity in price.

I actually prefer *Superbase*, not so much because its programming capability is more sophisticated (which it is), but because it's easy to use after reading only the first few pages of the manual. If the procedures stump you, then you won't be able to use Magpie.

It's really a case of try before you buy. A database needs more time to choose than a word processor, believe it or not. Allocate at least an afternoon, and visit a shop which has both, and is prepared to give you adequate time to evaluate each.

But, if it's value for money you're after, Magpie has got to be the software bargain of the year. ■

Under review	**Micro Magpie**
Description:	**Database for Commodore 64**
Supplier:	**Audiogenic**
Address:	**39 Suttons Industrial Park London Road Reading, Berks RG6 1AZ**
Telephone:	**0734 664646**
Summary:	**Cheap and easy to use for the beginner. But simple activities use complex procedures**
Price:	**£39.95 on disk**

More *memory* for business?

A look at the new Commodore 8296

by Karl Dallas

The memory of business computers is getting larger by the day; to the extent that 128K of RAM is now being regarded as the minimum for a 'true' business machine. So Commodore has beefed up the memory capacity of its 8096 range from 96K to 128K and has called the resulting machine the 8296. Apart from that, they look identical.

Overjoyed by the 8296's potential, Karl Dallas went out and bought one, but found that actually using it qualified his initial enthusiasm.



The launch of a 128K version of the 'business Pet', previously limited to 96K in its now discontinued 8096 version, must have been greeted with joy by many who, like me, were pushing hard against the limitations of the 96K memory. And the push was coming from within software houses, too.

Tom Cranstoun of Precision Software, told me, for instance, that he was hoping to be able to rewrite Precision's excellent Superoffice so that it was able to switch merrily between word processing, database and spelling checker without any reLOADing. (The present version offers you word processing plus a database, or wp plus spelling checker, and to get from the latter to the former you have to quit the program and reLOAD.)

He has decided not to, for the simple reson that the 'extra' 32K is virtually inaccessible to anyone but a hacker prepared to fit jumper wires all over the innards of his pretty new machine. I doubt that many business users are included in that description.

Let me quote what Tom tells me: "The extra 32K of RAM 'hides' behind the Basic/kernal area and is controlled by the user port. However, writing to the user port could cause the machine to lose its Basic or kernal inadvertently. Therefore the machine as shipped will not allow the use of the extra 32K RAM.

"A deliberate act on the part of the user will allow the RAM to function: a number of links inside the machine have to be made by wire, or better still by a DIP switch.

"These links allow 32K RAM-switching in 4K blocks, and can specify a 'power on' condition for slots '9' and 'A'. These slots are normally empty, but can be fitted with utility/security ROMs. Power-on can be set to use the RAM in this area, giving the user the option to softLOAD ROMs"

A call to Commodore at their new Corby technical enquiries number (0536 205252) confirmed that Tom knew what he was talking about. "It will, however, run all 8096 software with no trouble," said the lady in Corby. And that, according to Commodore's Gail Wellington, was the major consideration. The new machine had to be able to run the wealth of existing 8096 software. (Despite that, it is rumoured that Handic is adapting Calc Result to take advantage of the increased capacity).

Now, we computer writers lead a fairly charmed life, getting access to expensive machines and software free of charge, and so one could normally print a large warning, *caveat emptor*, in whatever medium one had access to, and pass on to the next subject with a laugh of gay abandon.

If you detect a rather different tone to what I've written so far, it's because, attracted by the possibilities of 128K to power my business, I actually went and bought one of these '128K' machines. And though I got a hefty journalist discount, I still feel rather sore about it.

Pros and cons

However, the good news is that the 8296 *does* perform exactly like the old 8096, and the new Porsche-styled look, originally created for the now discontinued 700, with detachable keyboard and a really nice key action, results in a very classy piece of equipment.



. . . Having obtained the upper hand in this desperate desert battle, the enemy is about to launch its final offensive on your battered town . . .
FALCON PATROL 2
FPII
£7.95
COMMODORE 64
JOYSTICK CONTROL
• Incredible 3D graphics • Radar jammers
• Flashload rapid load system (faster than disc) • Joystick control
• 16 level game with increasing difficulty • Flak batteries
• 3 types of enemy helicopters – Solo, Gunship, Transport
• Marvellous sound effects and theme tune
• Air-to-ground missiles • Air-to-air missiles
VGA 6005
If you thought Falcon Patrol was good . . .
FLASHLOAD
Programmed by Steve Lee

Under review	CBM 8296
Description:	**128K micro computer**
Supplier:	**Commodore**
Summary:	**Attractive, friendly version of the popular 8096 business machine, but with 32K extra memory that's tough to get at**
Price:	**£914.24**

If you team it, as I did, with the new low profile 8250 disk drives, which give you faster access times and double-sided disks (and therefore twice as much data per disk), work becomes rather like driving a powerful sports car that raises eyebrows wherever you pass.

A warning, incidentally, about the drives. They are less efficiently ventilated than the old square versions, and I found that piling papers on top – I know we shouldn't, but I expect everybody does – caused the drives to hang up until I turned off the disks and let them cool down.

This raises in my mind a possible problem about the 8296D, the version with integral disk drives. I tried to get hold of a review sample, to see how well it performed during extended use, because I'd have thought the drives would overheat much more when sandwiched between the neatly laid-out CPU and the VDU, but since I'm still waiting, I can't say.

(And Commodore has just announced that it is giving away £865 worth of software with the 8296D. That lot amounts to three applications packages: the SuperScript word processor complete with spelling checker, The Manager database and file management package, and Handic's Calc Result spreadsheet. Commodore dealers are selling the lot for £1,690 excluding VAT.)

Documentation

The documentation is really bad, even by Commodore's standards. The 8096 was supplied with an 8032 manual plus duplicated supplement; this new one also comes with an 8032 manual (illustrated by the old tin-box shaped machine, in which the way of getting into it and the chip layout is different; the Porsche body hinges at the back, instead of the front) plus the 8096 supplement *plus* an 8296 supplement.

This makes one wonder if Irving Gould is really serious about wanting to service 'all classes' with Commodore kit, or whether he's decided that only 16-bit architecture (a *la* the forthcoming badge-engineered Hyperion) or Unix (as in the promised Z8000 machine) will satisfy the business market, and he's not really bothering until they're available.

If that's what he thinks, then in my humble submission, he's wrong. I've actually got a Hyperion, and it's a sweet machine in its own way, but I'm writing this on my 8296, despite the fact that the 16-bit machine has 2½ times the available memory.

Conclusion

I like working on the 8296, and even if it doesn't have more memory than my old Pet-shaped 8096, it's still a nicer machine to use, with its detachable keyboard and tilt-and-swivel VDU. At the price I paid, I suppose I shouldn't really complain.

But if I'd paid nearly a grand for an 'upgrade' that wasn't, I might feel somewhat aggrieved.



TERRORIST
COMMODORE 64...JOYSTICK CONTROL
...HELLO RED LEADER...TERRORIST ATTACK
...SHOOT TO KILL...AWAIT INSTRUCTIONS...
£7.95
FULL SOUND FEATURES
8000 PLUS MAPS
HIGH SCORE TABLE
MULTI STRATEGY CHOICES
3D BATTLE SEQUENCES
FOUR DIFFICULTY LEVELS
REALISTIC ARCADE ACTION
CONSTANTLY CHANGING ATTACK SEQUENCES
VGA 6006
PROGRAMMED BY ANDROMEDA SOFTWARE LTD
FLASHLOAD

So you think you

How to complain about duff products

by Charles Christian

As far as the laws of the land are concerned, anyone who buys and uses a computer for a hobby or out of educational interest is lumped together in a general category of people known as 'consumers'.

Now, it can lead to desperate problems when a business computer system goes down, leaving a company "in the lurch" as regards its data processing requirements. But it can be just as annoying for an enthusiast to discover that the computer system he or she has spent a lot of money on will not work. Indeed, the blow to someone who has painfully saved up enough money out of a meagre pocket-money allowance to buy something like a 64 may be considerably harder to bear than for a well-heeled businessman who has perhaps paid many thousands of pounds more on a system.

Fortunately, though, consumers do have rights – rights which frequently are far more generous than those enjoyed by businessmen making non-consumer purchases. But do you actually know what these rights are?

Commonsense might suggest that if your computer system does not work, all you have to do is take it back to the supplier you originally bought it from and demand your money back. But is life and the law really as straightforward as that. Read on, and you'll find out...

The starting point with this subject has to be the 'contract' for the sale of goods between you and the trader who supplies you with them.

You may have read about long, complicated legal documents spelling out lots of elaborate "terms and conditions". In fact these are totally unnecessary for consumer transactions – word of mouth is good enough. To be precise: the moment you offer to buy, say, a light pen and the trader accepts your money, you have all the factors present that are necessary to create a legally binding contract.

It therefore follows that if the trader takes your money and then fails to come up with the goods, the trader is legally in the wrong. He is acting "in breach of contract". And unless some form of settlement can be agreed, ultimately you will be entitled to sue for financial compensation – known as "damages" – in a court of law.

Almost a fact of life you'll find that (legal necessity or not) most traders – especially when you're buying hardware – will issue you with a formidable set of terms and conditions in writing. Such things are known as "express" terms.

Regardless of what they may or may not claim, such terms are not legally binding... *unless they are brought to your attention before the contractual transaction is completed.*

Implications

Further, even if you are aware of the terms, the trader is still not permitted to deprive you of any of your "statutory rights". Without getting too bogged down in the legal minutiae, the most important statutory rights are a set of three 'implied' contractual terms spelled out in the 1979 Sale of Goods Act.

These implied terms are in effect promises made by the trader to you about the quality of the goods you are buying. So no matter what may be down on paper, any court of law that considers your case will automatically read these implied terms into the contract – thereby crediting them with as much importance as if they had been formally spelled out in writing.

In a nutshell the three implied terms are:

- **that the goods are fit for their "usual use".** In other words, if you buy a cassette deck for a Vic or a 64 you are entitled to assume that it will actually run software programs. On the other hand, you cannot complain if your floppy disks start to suffer when you treat them as table mats; in no way can you be said to be using them for their "usual use".
- **that the goods are of a proper "merchantable quality".** If you



u know your rights?



buy something as "new" it should be in perfect condition and not shop soiled. Similarly, if you get an electric shock off the equipment, there is obviously something wrong with it – entitling you to complain that the item is not of "merchantable quality".

- **that the goods are "as described".** Thus a stock control program specifically described as catering for 1,000 different categories of goods should be capable of holding 1,000 categories. Otherwise the program is not "as described" and the trader is once more in the wrong.

Although wrapped up in legal terminology, these implied promises cover the three most frequently encountered problems likely to face a Commodore user – "the thing doesn't work properly"; "the thing is of poor quality"; and "although there is nothing wrong with it, the thing is not what I asked for".

Fortunately, the courts do not expect you to learn the law in great detail. And, as long as the facts in your case broadly fit in with these principles, you are in the clear.

And on to practical matters

Having dealt with the theoretical background to consumer goods law, the next matter to consider is the practicalities of defending your rights when something does go wrong.

Mention has been made of suing people in court; but in fact litigation should always be seen as the final step, only to be taken after all other approaches have failed to be of any use.

So, faced with, say, a defective gadget to plug into the back of your CBM computer, just what steps should you take?

- **against the trader:** the first thing to do is complain, as many traders will quite happily come to terms if a reasoned (as opposed to an hysterical or abusive) complaint is made of them. Always make your complaint without delay: and don't give up easily. If necessary, send a *written* complaint to the trader. And if you still get no satisfaction, write to the trader's head office, their suppliers or to Commodore itself – most of them will be keen to ensure that only reputable companies are involved with their products.

Assuming the trader accepts responsibility, what can you expect?

The trader may offer you a *free repair*. Although there should be no real reason why you shouldn't accept such an offer, bear in mind that you are under no legal obligation to do so.

Likewise a trader may offer *to exchange the goods*. Once more, you may accept a replacement; and it is probably the most convenient thing to do. But again you are under no legal obligation to do so.

What you are actually entitled to in law is "damages" – in other words, *cash compensation* for any loss the purchase of the defective item may have cost you. Thus, for example, if the gadget is so defective that it causes your main processor to blow up in your face you can also claim the cost of replacing or repairing that.

Alternatively you are entitled to get your *purchase money refunded* – which is possibly the most frequently sought after remedy.

But the main rule is – act swiftly. If you wait six months before claiming, the law may deem you to have "accepted" the goods; which means that your legal rights are considerably curtailed. The legal rationale is that the longer you have something, the more likely it is that any faults it contains are due to natural "wear and tear" rather than to some inherent fault.

Finally, before leaving the subject of remedies altogether, watch out for a trader offering you a "credit note". When you are entitled to a full refund you can *insist* on it being in cash.

Court in the Act

Assuming you can reach a settlement with the trader, all your problems are over. If not, you are going to have to resort to litigation.

Bearing in mind the average cost of Commodore systems, it will usually be possible to pursue this by bringing what's called "ordinary action" in a County Court. The upper ceiling on claims of this sort is £5,000; after that cases have to be dealt with in the High Court.

And where the claim involves no more than £500, there are in addition two legal rules which make life a lot easier for any do-it-yourself lawyers. To begin with, for small claims of this sort both sides have to bear their own legal costs – so even if you lose, you will not be landed with a big bill to pay for the trader's lawyers. And secondly, these small claims are dealt with in informal "arbitration" hearings; those are far less daunting for the amateur than a full-blown trial before a judge.

Before getting around to litigation, you may well find that the trader in question has done a bunk – this can often be a problem with mail-order suppliers. Or alternatively, may be in dire financial straits – lawyers describe such people as being "men of straw" – so as to not make it worthwhile to sue them. Fortunately three alternatives exist:



- **Against the manufacturer:** In the course of normal events, because your contract is with the trader he is the only person you can sue for breach of contract. If the trader was merely acting in a dealership capacity, though, he was selling products on the retail market which have been manufactured by someone else: and in certain circumstances it may be possible to seek compensation from, or even sue, the manufacturer directly.

This can arise where the manufacturer supplies a 'guarantee' or 'warranty' with the product, as this is construed in law as being a separate contract – this time between you and the manufacturer direct, thereby cutting out the middleman. Bearing in mind that a company like Commodore is most certainly not a "man of straw" it may often be more worthwhile if you have a guarantee, to go straight for the manufacturer.

- **Against a magazine:** Whilst a company like Commodore may be sound enough, smaller 'gadget' manufacturers and software houses have an annoying tendency for being unstable. Mail-order suppliers are the most unreliable; and in many instances if your dispute is with someone of this sort you may have to reconcile yourself to a complete write-off.

On the other hand, it may turn out that the magazine or newspaper that carried the mail-order advertisement runs a compensation scheme for readers. These are purely voluntary affairs – indeed they can best be regarded as public relations exercises – but the basic principle is that anyone who has sent money to an advertiser who subsequently defaults can claim compensation from the publisher.

- **Against the credit supplier:** Finally, if the item that is the centre of the dispute was bought with the assistance of a credit card like Access or Barclaycard, you will be relieved to know that under Section 75 of the Consumer Credit Act 1974, the "credit supplier" may also be liable for the goods.

So instead of pursuing an action against a possibly insolvent trader, you have the option of suing a well-heeled bank for compensation.

Surprisingly few people seem to be aware of this very powerful provision. It's worth bearing in mind however that the credit supplier is *only* liable if the cash price of the goods was between £30 and £10,000. The upper limit should cause few problems: but the lower one will mean that the suppliers of some of the smaller CBM-type accessories and ROM or cassette-based software will probably fall outside the scope of Section 75 measures.

Last words?

Faced with the defective product, most consumers' first reaction is either to be upset or to have a stand-up row with the manager of the shop where it was originally bought.

In fact there is no reason to panic.

You **do** have legal rights – plenty of them. And, not only are there a number of different approaches you can adopt, but you can pursue them against a number of different people. The secret is to tackle each one in turn in the methodical way until finally you reach the point of commencing legal action as a last resort.

So, if the thing won't work – don't be a wimp: go and do something about it! ■

Y-E-S Vic 20 & 64

SALES & SERVICE

COMPUTERS

SAY YES FOR COMMODORE
HARDWARE, SOFTWARE & PERIPHERALS

YORKSHIRE ELECTRONICS SERVICES LIMITED
Caxton House,
17, Fountain Street,
Morley, West Yorkshire
Tel: 0532-522181

Commodore 64 + Vic-20 Club

All original software – business and games. New releases for CBM64 every two weeks.
Send your name and address to go onto our mailing list.

M.J. Seaward
St Olafs Road, Hill Head, Stratton, nr Bude, Cornwall.
Telephone: Bude 4179.

TRIDENT ENTERPRISES

UPGRADES

1541 & 1540 £40.00 Incl Parts
2,3,4000 Computers £70.00 Incl Parts
2,3,4000 Floppies £97.50 Incl Parts

COMMODORE REPAIRS

Vic-20's £12.50 - Parts
C64's £15.00 - Parts
1541 & 1540 Floppies £20.00 - Parts
8000 Series Computers £40.00 - Parts
8000 Series Floppies £40.00 - Parts

FIELD SERVICE

40 Miles Radius of Slough on Business Systems (Telephone for further details)

We also repair BBC's and Spectrums

Send your machine with a brief description of faults to:
Trident Enterprises Ltd, 37 Linden House, Common Road,
Langley, Slough, Berks SL3 8TT (0753 48785)
(The above prices are Exclusive of VAT & P&P)

commodore 64 SOFTWARE DISCOUNT PRICES

All prices INCLUDE VAT & Post/Packing

Title	RRP	Our Price	Title	RRP	Our Price
Percy/Potty Pigeon	~~7.95~~	7.00	Strip Poker	~~9.95~~	8.75
H.E.R.O.	~~9.95~~	8.75	B C Bill	~~5.50~~	4.85
Monty Mole	~~7.95~~	7.00	Flight Path 737	~~7.95~~	7.00
Flip & Flop	~~8.95~~	7.95	Decathlon	~~9.95~~	8.75

Just a few examples from our extensive software lists for CBM 64/VIC 20
Please send S.A.E. for complete up to date list (State machine)
Credit card orders accepted by post (Access/Visa State card + number) or phone
Cheques/P.O.'s should be made payable to:

VISA

CUSTOM VIDEO
COMPUTER SOFTWARE

Access

Whit 266165 1 & 2 TOWER PARADE, WHITSTABLE, KENT. CT5 2BJ Whit 266165

Wordprocessor for the CBM64 for ONLY £395.00

ARE YOU WORRIED about buying a word processor system for your CBM64, but frightened you'll need a degree in electronics to get it working? Well here's a system that is not only simple, but actually works. A professional word processor including a Daisywheel Silver Reed EXP-400 printer, Wordcraft 40 software on cartridge and an interface cable (worth £20.00), no need for a disk drive. We will also send you a Centronics interface tape for general printing and listing. All at the unbeatable price of only £395.00

Just plug the computer into the printer, no interface required, and you are ready to produce those professional letters and reports as soon as you switch on.

If you already have Easyscript free with your Disk drive, then this printer with our free cable is fully compatible, for just £315.00. Please add £8.00 P&P (delivered by Securicor).

If you would like further details please send a large SAE.

Numeric Keypad
For CBM64 and Vic-20

Essential for the serious and business user. No software required: simply fits in parallel with keyboard. Always ready to use. High quality, gold contact, full travel key switches for long reliable life. Includes return key and 1 metre of cable.
Now available at the introductory price of £28.95 (inc VAT) & £1.00 P&P.



Please send cheques/PO to:
Commercial Products, 11 Hylands Close, Furnace Green, Crawley, Sussex RH10 6RX

FREE

with "Your Team" a Bobby Charlton Leather Match Ball worth £6.95

A must for all soccer enthusiasts

Yes, absolutely free for a limited period, with every copy of the program "Your Team" a real leather Match Ball autographed by Bobby Charlton (R.R.P. £6.99). "Your Team" is a database program to record and analyse your favourite team's match results, scores, attendances, statistics etc. All recorded in your club's colours. Football league, Scottish League or your own team, school or club can be kept season after season.

Available for Spectrum, BBC, Electron, CBM 64 – £9.95 plus £1.00 P&P. Order today enclosing cheques/PO, Access/Visa to: Bec Sports, Dept CU, Bec House, Highlands Ave, Northampton.
Tel: 0604 499 246.

PRINTER BARGAINS

INTERFACE/CABLE INC.
VAT & CARRIAGE INC.

FOR VIC-20 AND CBM64

Seikosha	**GP100VC**	30 cps Graphics	145
Seikosha	**GP500A**	50 cps Graphics	209
Seikosha	**GP250X**	50 cps Graphics	245
Seikosha	**GP550A**	50 cps Correspondance	255
Seikosha	**GP700A**	7 Colour 50 cps	369
Shinwa	**CP80**	80 cps Friction/Tract	235
MicroP	**CCP40**	4 Colour 40-80 column	169
Canon	**PW1080A**	160 cps – Draft 27 cps – NLQ	348
Epson	**RX80T**	100 cps Traction	275
Epson	**RX80FT**	100 cps Friction/Traction	309
Daisy Step	**2000**	18 cps Daisywheel 96 char/line	285
Interface/cable		Trippler 20 software not req	45

Monitors Philips **V7001 – £85** Fidelity **CM14 – £219**

Payments to:- STRONG COMPUTER SYSTEMS
Bryn Cottage, Peniel, Carmarthen, Dyfed
Tel: 0267 231246 for Full Price List & Specs

COMMODORE 64 THREE SUPERB UTILITIES

No. 1 Tape Back-Up Utility This will assist the user to make personal security copies of their software onto tape or disk. Two versions available on one tape. £4.99

No. 2 CKS Monitor A 15 function machine code monitor, includes assemble, disassemble and all other usual commands. Supports cassette, disk and printer. Just £5.75

No. 3 Tape Header Reader A full feature 3 stage utility. A must for all serious CBM64 owners. Priced at only £3.75 and will also compliment the above two programs.

All programs are supplied on a quality data cassette and with full written instructions. Available on disk at £2.00 extra per program. (Not for use with 'Fast Loader' programs). Send cheque/POs or sae to: Clark Kent Software, 26, North Cape Walk, Corby, Northamptonshire NN18 9DQ.

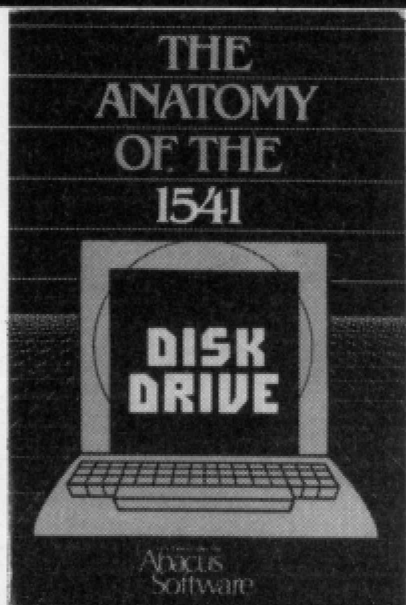
ADVERTISERS!

Rent this space for £40.00 or less per month

Contact:
Julia West
01-251 6222

BOOK LOOK

The Anatomy of the 1541 Disk Drive



The Book:	The Anatomy of the 1541 Disk Drive
The Authors:	Lothar Englisch and Norbert Szczepanowski
The Publisher:	Abacus
The Supplier:	Adamsoft 18 Norwich Avenue Rochdale, Lancs 0706 524304
The Price:	£14.95
The Reviewer:	Dermot Williams
The Conclusion:	Worth having

The 1541 is one of the least understood of the Commodore peripherals: a lousy manual, dotted with mistakes and omissions, leaves people under-utilising what can be a flexible add-on. Many people are content only to LOAD and SAVE programs and sequential files, little realising the power available through use of relative files, and the direct access commands.

Well, the good news is that all these, and more, are dealt with adequately in an easily-understood style in this book from Abacus. As well as explaining the ordinary DOS commands the book goes on to explain relative files, the direct access commands and the internal structure of a 1541 diskette – the block availability map, the directory, and so on.

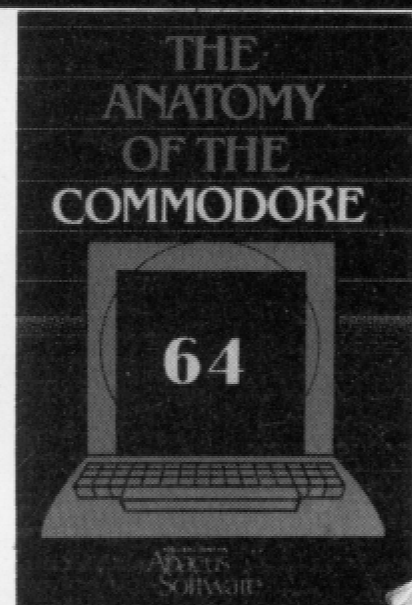
Many useful utility programs are given. These programs are an education in themselves, demonstrating many of the commands dealt with. The Disk Monitor program in particular is excellent – it allows easy editing of individual disk sectors, useful for patching up messed disks.

The authors even document the 1541 TEST-DEMO disk programs, including the DOS wedge, giving the instructions for use that Commodore forgot...

For the really keen, the authors also give a fully commented disassembly of the DOS 2.6 ROM, discovering a new command in the process.

This book I recommend to anyone who has got lost in the 1541 user's manual, or those of you who want to utilise your disk drive to the full.

The Anatomy of the Commodore 64



The Book:	The Anatomy of the Commodore 64
The Author:	Various
The Publisher:	Abacus
The Supplier:	Adamsoft 18 Norwhich Avenue Rochdale, Lancs 0706 524304
Price:	£14.95
The Reviewer:	Dermot Williams
The Conclusion:	Expensive goldmine

This book has never strayed more than a few feet away from my 64 since I got hold of it. It really is a goldmine, aimed particularly at the Machine Code programmer, and it's full of useful routines.

Half the book is occupied by a disassembly of the Basic and Kernal ROM. The disassembly is very well documented, and switches between hex, ASCII and disassembly as appropriate for jump tables, command word lists and programs. It is easily the best disassembly for the 64 I have seen; so good that I would have bought the book for it alone.

However, this book has more to offer. The first chapter deals with machine code programming on the 64, giving many useful tables of ROM calls, and devoting a lot of time to I/O from machine language. Other chapters deal with the advantages of assembly language as opposed to pure machine-code programming: the 64's hardware and memory configurations, and the workings of the Basic interpreter, including how to expand Basic – with working examples.

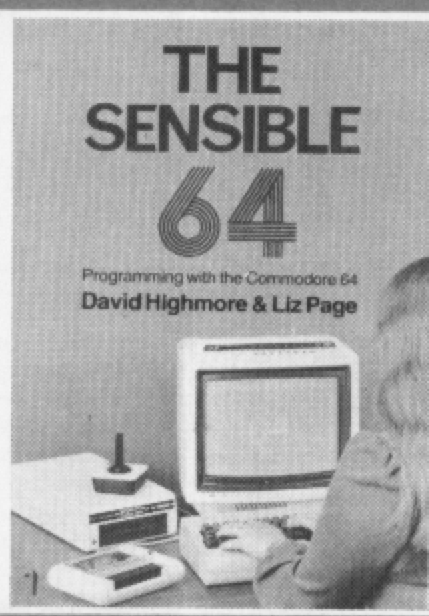
Three chips dealt with in individual chapters are the SID (mainly sound), the VIC (graphics) and CIA (I/O).

Thankfully, there is very little material in this book which is likely to be in half the books on your bookshelf – such as the standard appendices packed with all too familiar tables and diagrams.

It's a pity this book is so expensive, but it costs just as much to buy in the USA. Even taking the price into consideration, I strongly recommend this book to anyone who wants a good 'anatomy' book for the 64.

BOOK LOOK

The Sensible 64



The Book:	The Sensible 64
The Authors:	David Highmore and Liz Page
The Publisher:	Microbooks
The Price:	£5.95
The Reviewer:	Ken Ryder
The Conclusion:	Useful hints and tips but overpriced

The *Sensible 64* contains 122 pages of useful pieces of information omitted from the user manual. It mainly concentrates on graphics, with a small section on the music facilities offered by the SID chip. There is no introduction, the authors dive straight into input from the keyboard using the GET statement to select menu options. Numerous short useful subroutines are given as examples.

User defined characters pop up next with the usual instructions on how to design and locate them in memory. Multicolour and reverse options are also included, something which is often glossed over in other dissertations I've seen. The subject of sprites follows on naturally, and is equally well covered. Useful single line Basic statements are given to help control the numerous sprite registers. But to grasp this section fully the reader should have been introduced to logical operators, AND, OR, but unfortunately is not.

The chapter on screen memory offers a useful subroutine for storing alternative screens and their colour maps in the spare 4K RAM above Basic. The authors admit that Basic is too slow for large amounts of data transfer, and introduce equivalent machine code routines. Again no attempt is made to explain the code – but it does encourage you to find out. Machine code is again used in the mysterious art of screen scrolling. I say mysterious because Commodore neglect it entirely in their user manual, and only mention it in passing in the Reference Guide. Extended colour mode is briefly explained, but no applications are suggested for it.

High resolution and multicolour bit mapping is saved for the last subject on graphics. Where to locate hi-res screens is briefly and incompletely covered. Again a machine code subroutine is used to good effect to clear a bit mapped screen. Several compact Basic subroutines are included for drawing lines, squares and circles.

This section is followed by a brief description of bank selection, and another subroutine that addresses the VIC chip to bank 2, allowing the creation of 128 user-definable characters and up to 16 sprites, leaving 30K for Basic programs. Joysticks are introduced and combined with hi-res graphics to produce a crude plotting routine under joystick control.

Only 20 pages are devoted to sound and music. The sound envelope, ADSR is well explained including waveforms and sound effects. General music notation is introduced with a useful table of POKE values for notes and their duration. Unfortunately only a single voice is covered, and there is a little advice on chord generation. Filtering and ring modulation is skimmed over and one of the final comments of the chapter is 'It is impossible to give more than a guide to the sound capabilities of the Commodore 64'. I think this is more of an excuse than a statement of fact.

The final two sections deal with disk drive and printer operations. The examples are rather trivial or more adequately covered by the appropriate Commodore manuals, (and they are bad enough).

The *Sensible 64* implies a 'serious' approach to programming; instead it is a serious approach to the advanced facilities of the 64, filling in the gaps of the user manual. There are many useful subroutines, particularly on the subject of high resolution graphics, including some machine code. But explanations are generally brief and somewhat superficial leaving you wanting to know more, but without the detail to find out. At £5.95 it is rather expensive.

TOMMY'S TIPS

Tommy is Commodore User's resident know-all. Each month he burrows through a mountain of readers' mail and emerges with a handful of choice queries. The result, before you, is a wadge of priceless information and indispensable advice. There's even the odd useful tip as well.



***Dear Tommy,* I have had my Vic-20 computer for four months now, and I seem to have a problem and was wondering if you could help me.**

A couple of days ago I bought two books to help me use my Vic. It is when I try to program the games listings into my Vic, that my problems occur, and it happens with any long program.

What happens is that when I have reached the end of the program and listed it there are lines missing. It seems as though the computer will not accept the lines.

When I was trying to program a game in, I had got halfway through it when I got an UNDEF'D STATEMENT ERROR message, and I hadn't even finished programming let alone typed RUN or LIST. And when I tried to type in two lines, one line never came up in the listing no matter how many times I typed it in and the other gave a SYNTAX ERROR message even though it was the same as the line given in the book. I am writing to you because I don't know who else to turn to.

I assume that the programs you are attempting to put in are not just too large, but assuming they are all ones which should fit into the available memory then it sounds very much as though you have a faulty RAM chip in the computer. Do you sometimes have trouble with the Vic not powering-up correctly (you get garbage on the screen)? If so, this is almost certainly a faulty chip. There is a way you can test this; enter the following program and run it (do not put in any of the spaces except inside quotes). It will tell you if any RAM address is not functioning correctly. You may have to run it several times since faulty RAMs can be very intermittent, sometimes working correctly and then failing for no apparent reason. If your computer fails the test even once then take it back to your dealer for repair.

```
10  PRINT"[CLR]"
20  FOR A=4253 TO 7679
30  X=PEEK(A):PRINT A;
    "[CUR UP]"
40  POKE A,O
50  IF PEEK(A) <> THEN
    GOSUB 100: GOTO 80
60  POKE A,255
70  IF PEEK(A) <> 255 THEN
    GOSUB 100
80  POKE A,X: PRINT"[CUR
    UP]": NEXT A
90  END
100 PRINT" FAILED": RETURN
```

If you have any memory expansion then you should alter the loop values in line 20 as follows:

+3K – change first value to 1182.
+8K – change first value to 4768 & second value to 16383
+16K – change first value to 4768 & second value to 24575
+24K – change first value to 4768 & second value to 32767

(The reason the test does not start at the very beginning of the Basic area is that you must not disturb the program itself which occupies 157 bytes).

***Dear Tommy,* My problem is mixing graphics on the Vic-20. It is easy enough to just print or use POKE commands to get one of the graphics on the keyboard, but I would like to get complicated graphics, like those on games that you buy. I have a switchable 16K expansion.**

I would also like you to recommend a good programming book for a Vic-20 with 16K expansion (switchable) suitable for a 10-13 year old.

What you have to do is to design your own characters on an 8x8 grid and then tell the computer to use your character set instead of the normal one. To start with, you need to transfer the existing character set into RAM so that you can play around with it; this also ensures that you don't get garbage on the screen when you swap between the two. This is done as follows:

```
10 POKE 52,28: POKE 56,28:
   CLR
20 FOR A=7168 TO 7679: POKE
   A,PEEK(25600+A):NEXT
70 POKE 36869,255
80 END
```

You can now replace any of the characters with the design of your choice. The characters are made up of 8 rows of 8 dots; each character is therefore stored as eight bytes in memory. By actually drawing your character on paper and filling in the squares to make the design, you can work out the value to be put into each byte since a filled square equals 1 and an empty square equals 0. the resulting 1s and 0s make up a binary number, for example **00111100 = 60**; this is the value you would need to POKE into the relevant memory location. All 8 rows are totalled in the same way, giving you your new character. A small program will illustrate it much better:

```
30  FOR A=1 TO 3
40  READ CH: FOR C=CH TO
    CH+7
50  READ V: POKE C,V
60  NEXT C,A
75  PRINT"[CLR]"; TAB(96):
    "JET"; TAB(88)
100 DATA 7248, 0, 0, 1, 30, 63,
    31, 3, 1, 7
110 DATA 7208, 0, 248, 38, 39,
    255, 255, 248, 240
120 DATA 7328, 2, 6, 14, 255,
    255, 254, 0, 0
```

Run this with the first part; a small jet fighter will appear on the screen. By expanding the data statements in groups of eight, you will see how the characters are made up (the first value is the start address of the relevant character); you can then follow the same method to design whatever you like. One restriction with using your own character set is that you can only move it to the RAM which is permanently in the machine (ie not any expansion area). This causes slight problems when using more than 8K expansion, but has no effect when using 3K extra since you can still reserve space at the top of memory. To regain the normal character set type **POKE 36869,240**.

On your second query I am not sure whether you want a book to tell you how to program on the Vic or one to learn Basic programming in general. If the former then **Vic-20 User Guide** by John Heilborn and Ran Talbott is as good as any, and if it is a Basic tutor you are after then you are rather spoilt for choice; **Illustrating Basic** by D Alcock costs £3.25 and is a good book although not for any particular machine. Commodore have a couple of good learning packages: **Gortek and the Microchips** (£12.99) and **Introduction to Basic (Parts 1 ands 2)** (£14.95 each), while Honeyfold have the excellent **Dr Watson** Basic course, but there are a number of others equally suitable.

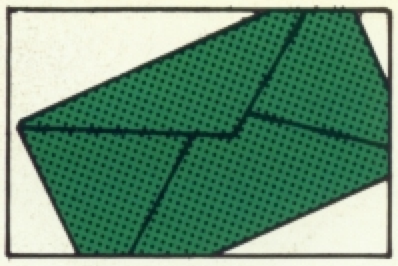
***Dear Tommy,* My father has bought the Commodore 64 Disk Drive and has given it to me to write people's names and addresses for his job – to store them on disk. I would like to know how I could print it out on the screen so the disk will save it, I would be very grateful if you could tell how you would do it.**

I think I detect a little confusion here between printing on the screen and storing the data on the disk; what you need is a program which will store each name and address in a record which is then stored in a file on the disk. I suggest you purchase one of the many database programs which are designed for this very purpose.

These programs will allow you to input the information, sort it into alphabetical order, display it on the screen, print it on a printer and finally store it on a disk or cassette. Make sure you check how many records you are going to need as some of the cheaper databases are limited in the number of records per file. There is of course no limit on the number of different files you can have so this may not be a big drawback. The best method is to ask for a demonstration before you buy, so you would be better off going to a dealer rather than getting it by mail-order if at all possible.

Letters
Write away

This is your page: normally we write for you, but here we listen. Feel free to let us know what you think – about the magazine, about Commodore, about suppliers, about life, art, the meaning of existence or whatever. We don't print everything we receive, of course; but anything that might be of specific relevance or general interest will make it to these pages.



Teacher's Pet

I am head of Computer Science in a Comprehensive School that had, as other schools and colleges, taken advantage of the Department of Industry scheme and purchased an RML 380Z. The intention was to equip a Computer Centre with these machines or the slightly cheaper 480Z. However, money became tight (due to Local Education Authority cut backs and also the 'flavour of the month' changed to technology) and we were, as a one-off concession, given £800 to purchase micros. This allocation would not even buy ONE more 380Z let alone 10 which was my brief! As you will no doubt be aware the other (cheaper) machine sponsored by the DoI is the Spectrum. Having looked at the Spectrum and considered it carefully I decided that it was insufficiently robust for general use. Given the environment of even a well supervised classroom the keyboard, let alone the case, would be under constant threat of damage.

I cast around for a machine that was robust, cheap, could be expanded at a later date and had come from a good stable. I am sure it will not be any surprise that I opted for the Vic-20 and, having contacted a supplier, was able to negotiate a good deal on the quantity order. The school is now equipped with eight Vic-20s, a Commodore 64 (with disk, printer, plotter, graphics tablet etc.) and, of course, the ubiquitous RML.

All the above is largely irrelevant except that it sets the scene. The Computer Centre provides 'micro power' to a large number of 'serious' users. By serious I mean people who only play video games occasionally and then are very discerning over the ones they pick. The School Library is now in a position to take a periodical of interest to computer users in the school and obviously they asked my advice. I spent three months buying ALL the magazines I could lay my hands on – from your better known rivals to the more obscure and esoteric publications. And now to my point, of all the magazines I bought in that three month period Commodore User was the only magazine that impressed me at all!

Yours was the only magazine not to be filled with listings of pathetic programs attempting to emulate ridiculous, and all very similar, arcade games. I do not object to those people who wish to spend hundreds of pounds on sophisticated equipment merely to play Ravenous Robin or the like. Nor do I object to software manufacturers making money selling overpriced, and very similar, games to them. I do not object when people who play these games refer to themselves as programmers nor when they publish magazines in order that they can tell each other how wonderful the wretched games are. I DO object when publications claiming to be respectable journals are filled with this rubbish. Having made a study of the available literature I am able to say that 99% of it is as described above.

I have taken an unprecedented step in writing to congratulate you on your own publication. The July issue was a masterpiece. The UNI-COPY64 program published (without error – a rare event in other literature) was probably the most useful routine published in any magazine for some years. Jim Butterfield is a great asset to your staff and should be retained at all costs. He has kept his high standard again in August with TINYMON for the Vic-20. I, and the rest of the Centre's Users, are grateful that at least one author and one publisher are actually interested in serious computing and are providing other people with the means to use their computers creatively.

I have a number of editions of Commodore User open on the desk as I type and the list of useful, informative, accurate and well written articles, program listings and 'shorts' is quite remarkable. You set the standard by which I shall judge all other publications. Let me say at once that whilst there are, at the minute, none to touch you, you must guard your growing reputation jealously – I was a little disappointed that John Rampling's, otherwise excellent, article "Using the 64's Function Keys" was published without its accompanying Basic listing. However mistakes will happen and I have no doubt that this is a mere temporary aberration. I will make no further reference to it!

Having written this unsolicited testimonial to you I need not add that my unqualified recommendation to the Library will be to take out an immediate and lengthy subscription to Commodore User. Once more my congratulations and our thanks.

A Freedman, 99 King Georges Ave, West Watford, Herts WD1 7QE.

The other side...

I am rapidly becoming your number one fan and maybe even quicker than that.

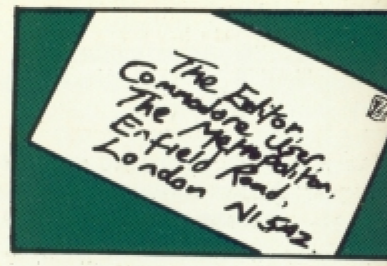
With the help of Butterfield and the boys and excellent tips from other readers I am understanding many things most puzzling. To thank all those would take for ever so please pass this tip to them with my gratitude. Disk Drive Owners Delight:

1 Take two new disks
2 Place back to back
3 Take Stanley knife or similar sharp object
4 Insert sharp object in write protect notch and make neat incision in bottom of disk
5 Repeat 4 until a neat square removed
6 Place disk in drive and format both sides

Why disk manufacturers don't do it without charging wicked prices I don't know. It does not work well on old well-used disks, so don't waste time.

Again my thanks for a great mag.

G Elliot, 116 Church Parade, Canvey Island, Essex.



You're quite right, it is possible to format and use the other side of a single-sided disk. But be warned: single-sided disks are usually verified only on one side. And they're probably sold as single-sided disks because they failed the double sided test.

Inky fingers

I was interested to read in the review of the MPS-801 printer (July issue) that the ribbon on that machine has an easily replaced ink pad. I have a 1515 CBM printer and when the ribbon recently refused to make any further impression I was encouraged to experiment and I discovered that the lids on the little boxes at each end of the ribbon can be easily prised off with the blade of a knife.

The right hand box is of no great interest as it contains merely some sort of tensioning device. The left hand box, however, holds the ink pad in the form of a foam rubber wheel. This is easily removed, soaked in stamp pad ink, and replaced. Maybe the ink I have is not the best for the job. At all events it is cheaper to apply some fresh ink than to pay £6.50 for a new ribbon!

R.G. Holmes, Dalilea, Glen Road, Peebles EH45 9AY.

Fingers do the walking

I am writing to you to tell you just how effective your 'classified' ads are. I had put adverts in many other magazines and had no response and had therefore wasted money on the adverts. Even now I am still receiving offers for my Vic-20 and they all say it was from your magazine that they saw my advert.

The reason why I sold my Vic was so that I could update my hardware to a Commodore 64. I think however that Commodore, like Sinclair, could have offered a trade-in deal, ie people who have Vic-20s and wanted CBM64s could send their Vic-20s in exchange for a 64. Thus not having to pay £200 for a 64. This way the owner of a Vic could buy a 64 at half price and at least get a trade-in on his/her old machine.

S Matthews, 25 Whitehall Road, Didsbury, Manchester.

Old Vic

I am writing to complain about your August edition.

I bought the magazine and read through it and wondered whether you had changed your name, like to CBM 64 User. I didn't find one feature (apart from the usual, eg games reviews, but not all of us like games) dedicated to the Vic-20 whereas the CBM 64 had two.

Also can't you find any Vic-20 books to review? As for your joint features eg All the Fun of the Show, it was virtually all dedicated to the CBM 64.

I know the Vic-20 is supposed to be dying, but all you're doing is putting the nail in the coffin, so please, please can you increase your Vic-20 articles, and keep it that way.

Finally, isn't your magazine shrinking? (losing pages – July issue 110 pages, August 68 pages).

Apart from the August issue, it's a good fair mag.

Gary Ward, 15 Court Crescent, Kingswinford, West Midlands.

Clubbing it Down Under

I wish to let you know details of our Commodore 64 Users group, recently formed here in Lismore, for publication in Commodore User.

Name of Group:
Lismore C-64 Users Group,
c/o John Grimmond,
Richmond Hill Rd,
Wollongbar,
Via Lismore, 2480,
N.S.W.
Australia.

I am very pleased to be able to buy this excellent Commodore computer magazine each month. It is one of the best magazines on Commodore Computers I have seen. I have both the C-64 and Vic-20 computers and find your articles and features very helpful and informative, especially the program listings. I sincerely hope that you and your magazine improve over the years to come and I will certainly keep buying it each month.

Congratulations on a wonderful publication.

Bruce Greig, PO Box 385, Lismore 2480, New South Wales, Australia.

Back-up problems

I have read with interest letters in Commodore User in which readers complain about their dealings with Commodore. Perhaps my own experience will be of interest.

In January, after three months of correspondence, I obtained Easy Stock. I am using that to control the parts inventory in my garden machinery repair business. The system works well, but as I find the single drive back-up program very cumbersome, I asked Commodore whether I could use two 1541 drives to automate the process.

They confirmed that this could be done by using two 1541 drives and the Copy-all utility that comes free on the 1541 Test/Demo disk.

I purchased the second drive, changed the device number to 9 (hard-wired) and attempted to make back-up copies of the Easy Stock data disk. No go.

Then followed protracted correspondence with Commodore in which they again confirmed it could be done and sent me various instructions for the use of Copy-all.

Finally, in response to a phone call from a local dealer, they admitted that Copy-all cannot copy Easy Stock data disks. Something to do with the way data is arranged on the disk – way above me. I'm no computer buff, I'm just a user.

From my dealings by letter and phone, I feel that Commodore treat their customers with discourtesy and contempt. Letters, including recorded delivery letters go unanswered. When they are answered, it is often after a three to five week delay.

From conversations with other users and with my local Commodore dealer, I conclude that these are not isolated incidents. It appears that Commodore are swamped by the scale of business and are unable to cope with the trade they have generated.

However, if any of your experts can help with the back-up problem, I would be grateful. Otherwise, who wants a cheap 1541?

Angus Shapland, The Quillet's Garth, Appledore, Ashford, Kent.

Anybody out there like to lend a hand in solving this reader's problem?

CLASS

Vic-20 £40.00: C2N (Vic-64) £25.00: Vixen 16K switchable RAMpack (guaranteed) £25.00: 30 software titles includes top games, utilities, educational £2.00 each: Books (offers) accept reasonable offers on single items or the lot. Tel: Coventry (0203) 306449.

Holland CBM-64 owner wants to exchange programs (disk) and tips with UK 64 owners. Many prg's available. Please contact Marnix D Tellings, 4 Ebstroom, 3224 CD Hellevoetsluis, Holland.

Vic-20 plus Programmers' Aid, 16K RAM, Stack motherboard, Stack rifle, Intro to Basic 1&2. £80+ software – Wacky Waiters & Flight Path 737. £30+ of books including Your Computer & Commodore User. All in good condition. 1½ years old. Price £160 ono. Paul Bateman, 154 Morley Street, Goole, North Humberside. Tel (0405) 4313.

16 yr old CBM64 user boys/girls, any age – please write to Lin, 18 Pitchford Rd, Heath Farm, Shrewsbury, Shropshire.

64 girl penpal wanted. Must be 15 upwards. Swap tips on computer. I am a boy, 16 years. Meetings? Dean Godden, The Coppice, Belper, Derby.

CBM64 owner with disk drive would like to correspond with female 64 owners with view to friendship & exchange programs. Sean Murphy, 35 Balfe Rd East, Dublin 12, Ireland.

Attention Vic-20 owner seeks penpal aged about 15 (male or female) to swap games, ideas, etc. Replies to: Paul Nolan, Westpark, Middleton County Cork, Eire. All replies answered.

Commodore 64, C2N cassette unit, only £200. Unwanted gift. Free joystick. Phone Amar (01) 574 8583 or (01) 571 3051. Also 1525 printer £200 plus printer paper and labels and free wordwizard program.

CBM64 – Vic-20 Hardware Utility. Load from C2N cassette and copy at same time to second recorder. Plus system reset button, £7.00 inc or sae details. A Denby, 6 Ropewalk, Alcester, Warks B49 5DD.

LOGO (Turtle Graphics) For Vic-20 plus Super Expander. Tape plus full manual £7.00. Pay I.M. George, 3 Alexander Close, Hayes, Kent BR2 7LW.

Calling Vic-20 owners I need a male or female pen pal aged 13-16 to swap games and tips. Write to Eric Young, 62 Husband Rd, Forest Hill, Victoria, Australia 3131.

Graphix 64: over twenty commands enables you to plot/erase points, draw lines and fill/erase areas on screen. (as advertised in Vicsoft magazine). Used only twice. Bargain at £8.50. Tim Bak, 117 Kingsway, Braunstone, Leicester LE3 2PL.

Commodore 64, C2N cassette recorder, joystick, paddles plus computer dust cover. Five games including Hobbit. Also Reference Guide with two other books. Computer only three months old; worth overall £310: sell for £200 ono. Ring: Petham 602 (evenings). Canterbury area, Kent.

Software for sale for the Vic-20. Including many expanded games such as Krazy Kong and Jet-Pac. If you want one of these games please contact Alex on 01-940 5767 or Paul on 01-940 2012.

Commodore software to swap or sell. Many British and American titles. programs include: Zaxxon, Blue Max, Jumpman Jr and many more. Write (send your lists) to Per O Stava, 4274 Stol, Norway (All letters answered).

Vic-20 owners penpal wanted. Age 13-15 boy or girl. Write or phone or send a program on tape to Chris, 19 Ardfin Road, Prestwick, Ayrshire, Scotland, will reply. (Unexpanded Vic).

Printer wanted for CBM computer to help with college work, any type but type-writer type preferred. Phone Hayling Island 67439 any time. 72 Rails Lane, hayling Island, Hants.

Teenage Vic user would like to hear from anybody, from anywhere, aged 15+. Write to Andrew Harris, 30 plas Newydd, baglan Moors, Port Talbot, South Wales.

Plymouth Commodore 64 Users Group. Meets first Thursday of every month. For further details ring Simon on Plymouth 772141.

Stanmore Commodore User Group – anyone interested? Contact Gavin Harris, 27 Silverston Way, Stanmore, Middx HA7 4HS. Tel: 01-954 4548.

Wanted: Modem software for CBM64 with Minor Miracles WS2000 Modem compatible with following standards CCITT V21,V23 and American Bell 202. Ring 01-337 3183 evenings and weekends.

Wanted: voltage transformer for Commodore 64. Ring Chris 0274 585417 anytime. Also monochrome monitor.

Want Vic 1540 disk drive, leads and user manual. Please contact me by letter. Mt address is Hill Farm, Kersall, Newark, Notts NG22 0BJ, thanks.

Wanted: CBM64 software I will pay cash. Write to C. Watt, 2 Portland Tce, Hexham, Northumberland NE46 3DT with any information and offers or ring Hexham 605314 after 6pm.

Switchable 16K RAM for a Vic-20. Phone: Carterton 841496 anytime.

Penpal wanted for Vic-20 user to exchange listings and and information. Please write to Barsneb Farm, Markington, Harrowgate HG3 3PJ, thank you. PS: name is Raymond Peacock.

Commodore 64 penpal wanted to write to a 13 year old girl. Write to: Jayne Faid, 24 Woodville Road, West Denton, Newcastle-upon-Tyne NE15 7JZ.

Wanted: a Commodore 64 user who will swap games. Write to: Danny Farrow, 7 South Park, Weeting, Brandon, Suffolk or phone (0842) 812482. ask for Danny. All letters answered.

Vic-20 software Mole Attack and Menagerie (cartridges) £5 each, Wizard and the Princess, Catcha Snatcha £4 each. Steve Hankinson, 2 Sunflower Close, Springfield, Chelmsford, Essex. Tel Chelmsford 465148.

CBM64 s/w sale. Internat. Soccer £10, Rat Race £7, Defender (Atari) £15, Forbidden Forest £7, China Miner £4.50, Hover Bover £5, Defender 64 £4.50, Siren City £4.50, Exterminator £4, Cyclons £3, Faceache £2, Camels £5, Revenge £5 plus more. Tel: 0622 61917, ask for Ian.

Commodore 64 daisywheel listings, Easyscript prints etc. Tape or disk, ring or write for quote: 01-360 2156 or Mark Wilson, 186 Prince George Ave, Southgate, London N14 4TD.

Vortex Raider CBM 64 exciting action game on disk £8 ono. Write to: J Kidson, Thrupp Farmhouse, Thrupp Lane, Stroud, Glos GL5 2DF. Tel: Stroud 2255.

Vic-20 plus C2N cassette (dust covers provided), 16K two adventure and two games cartridges. Competition-pro joystick, 100s of great games. Will deliver, bargain at £170 ono Tel: Shaw (0706) 845834.

Selling Stack Light Rifle, hardly used, original box, three games, either Commodore computer, £25. Contact: Justin Stafford, 41 Beech Tree Road, Holmer Green, Bucks, Tel High Wycombe 713031 after 4pm.

CBM64, 1541 disk drive, MPS801 printer, joystick, C2N tape recorder, 10 disks, word processor, plus £150 software plus 1 pair paddles, worth over £1000. Sell for only £800. Tel: Mike 01-657 1309 7-9pm.

Bridge cartridge and Labyrinth cassette for sale, unwanted gifts, £25 ono. G Hoult, 9 Elmlea Drive, Olney, Bucks. Tel: 0234 711007.

Toolkit for 4000 series Pets: fits UD4 socket. Complete with instructions, cost £39, offered at £18. Phone Flax Bourton 2830 (Bristol) evenings or weekends.

Commodore 64 address book and mailing labels program. Uses tape or disk, £5. Also word processor on plug-in ROM cartridge £25. Phone 0491 39497.

Commodore 64 games to swap or sell. Prices ranging from £2.50 to £4.50. All original copies! Replies to: Mr D Owen, 52 Partridge Close, Chelmsley Wood, Birmingham or phone 021-770 0492 (Monday to Friday).

Vic-20 plus cassette unit, Super Expander, joysticks, tape and cartridge software as well as books and magazines only £200. Contact: Carole Painter, 4 Tamar Gardens, Whitley Estate, Reading, Berkshire RG2 7LB.

Vic-20 Word Processor. Victext. Powerful word processor. Facilities include:- Large text buffer, auto centre text, variable tab, insert, amend, delete, copy, move text, word count, right justify, etc. Fully menu driven with comprehensive easy-to-use instructions. Needs +16K expansion min. Great value: cassette £6.95, disk £9.45.

SIFIED

Adman Speech Synthesiser for Vic-20, 4 months old, £30. Dr Watson Beginners Assembly Language Course (book and cassette) £8. Amok £1. All as new. Mr S.Y. Law, 36 Church St, Littleborough, Manchester.

Bargains! Vic-20 Programmers Aid Cartridge complete with user manual £20. Amok (Audiogenic), Destroyer (Sumlock) £1.75 each. Both brand new, originals. Mr S.Y. Law, 36 Church St, Littleborough, Greater Manchester OL15 8AA.

Vic-20, C2N deck, motherboard, 28K switched RAM, 6502 assembler, Programmers Guide, Vic Revealed, £130. Richardson, Mereden, Bredhurst, Gillingham, Kent ME7 3JW. Tel: Medway (0634) 35261.

Vic-20 plus 16K, cassette unit, Intro to Basic One and Two, joystick, lots of games, books and magazines, £150.00 ono or swap for 64 or BBC B. Phone 0603 713542.

Vic-20 plus 32K switchable RAMpack between 16K, 24K, 3K, block 5. Vic-20 RAMpack under guarantee. Both £130 ono. Tel: 0655 82037 after 4pm. Write: 4 Craigie Avenue, Maybole, Ayrshire, Scotland KA19 8BD.

Super Expander cartridge. Very good hi-res multicolour graphics, 3K of RAM and use of function keys, £20. Phone Ruislip 32649 and ask for Liam after 6pm.

Vic-20, C2N tape, switchable 16K RAM plus Super Expander, 3 cartridges, Chess, Gorf, Omega Race plus over £70 of progs. Jetpac, Hell Gate, Skyhawk etc. Joystick, VGC. Contact Lancing 752672 evenings.

CBM64 100% original arcade game, Motor Mania, excellent graphics, only £8.95 inc. P&P. Used twice only. Contact: John Din, 6 Bawtrey Road, Bessecarr, Doncaster DN4 5NW, South Yorkshire.

Solutions to Scott Adams adventures £1 inc. Send money with your name and address to: Martin Wright, Alma, Cillennin, Lampeter, Dyfed, Wales SA48 8RM Tel: 0570 470362.

Commodore 64 with C2N cassette unit, including three games, manuals, journals – boxed as new. £200. Tel: 01-574 9383 (evenings) or Staines 81 61688 x 372 (daytime). John Stevens, 64a North Road, Southall, Middlesex.

CBM64, C2N, manual, Reference Guide, books, Quickshot joystick, Colossus Chess, Llamasoft games, assembler, blank tapes, program collection, dust cover, boxes. Bargain £260 for quick cash sale. Marc, 01-961 6032.

Software Future Finance and Easy Stock on diskette. £35 each. Tel: 037 384 317.

Vic-20, C2N cassette unit, Introduction to Basic Part 1, 32K switchable RAMpack, games worth over £200, Quickshot joystick, excellent condition, worth £400, sell for £250 ono. Tel: (0639) 55281, South Wales.

CBM64, C2N, joystick, Guide to Basic, Program Ref Guide, lots of extra books include some machine code books, ROM game plus 13 other cassette games. £260. Day (01) 486 5811 ext 6548 or 01-699 3426 eve.

Vic-20 with cassette player for sale £100, with 25 cassettes. Arcadia, Scramble, also a 16K RAM cartridge. All enquiries 17 Oldfield Road, Sale, Cheshire after 6.00pm only.

Vic-20 Super Expander £20, machine code monitor £20, adventure and games cartridges £5 each. Arcade games and adventure cassettes £3 each. All originals, consider swaps. Tel: (0734) 23653. Will post.

Adventures for the 64. Send disk with one good program and receive four unique adventures in exchange. Box 201, Alexandra, New Zealand. Include £2 for air mail return.

Hobbit: can anyone tell me how to get out of Goblin's Dungeon? If so, contact: Martin Smith, 67a Swithland Lane, Rothley, Leicester LE7 7SG.

I have an idea for a program which could be worth a fortune. Unfortunately I can't write it. If you can contact R Ham, 188 Romford Road, Forest Gate, London E7 9HY.

Wanted: Quickshot II pay up to £6. Phone Sean: Seaton Delaval 372577 or write 48 Millfield, Seaton Sluice, Whitley Bay, Tyne and Wear NE26 4DD.

Vic-20 boxed as new plus books plus software £90 ono. C2N cassette unit £25. Contact: Kevin Green, 3 Flemish Fields, Chertsey, Surrey, telephone Chertsey (09328) 65031.

Vic-20 Starter Pack plus 16K RAMpack, software worth £50.00 plus books worth £11.00, everything nearly new, excellent condition, worth £250.00, will sell for £175.00 ono. Phone Yately (0252) 876037.

Vic-20, plus 16K RAMpack, £100 of games etc. Only 3 months old, worth £290, will accept £170. Ring: Wantage 65944, or contact Justin at 1 Elswith Close, Grove.

Vic-20 games for sale, two pounds each, including Gridrunner, Galaxians, Creepers, Caterpillar, etc. Phone Alford 6233 for details or write to Richard White, Whitegates, Hanby Lane, Willoughby, Alford, Lincs.

Atari: six cartridges Pitfall (£5), Defender (£5), Frogger (£5), Centapede (£10), Warlords (£3), Combat (£3) or £27.50 the lot. Simon Hegarty, 15 Highfields, Hoylandswaine, Sheffield, S30 6JP. Tel: Barnsley 762349.

Commodore 64 code breaker. A game of logic, find the hidden colour code, excellent graphics and sound. Only £2.99. Send cheques to: M Caulfield, 176 Ardilaun, Portmarnock, Co Dublin, Ireland.

Vic-20 four months old, C2N cassette, 3 tapes, 1 book, unwanted gift, £90 ono, Tel Leven 29513 (Fife).

Vic-20, Super Expander, C2N, Sargon Chess, Adventure Land, Voodoo Castle, cartridges, 2 books, 30 games. Will separate, phone: 021-3536383.

Vic-20 software for sale. Many titles from £2.50. All original. Phone Mitchell (0362) 4497 for details, or write: 9 Moorgate Cottages, Southend, Dereham, Norfolk NR19.

Vic-20 Starter Pack, 16K switchable RAMpack, tapes plus cartridges, dust cover, joystick, and many books. £160 ono. Contact Neil Allen, 9 Marley Road, Hoo, Rochester, Kent. Phone: (0634) 251354.

Vic-20 plus cassette recorder, joystick, Super Expander, 8K, twelve games, three utilities. Offers for complete package. Tel: J Wilson 01-427 2937.

Wanted penpal to exchange Vic-20 programs with, for details write to 57 Mayfield Way, Barwell, Leicestershire LE9 8BL.

Vic-20, 32K RAM switchable, £75 software, manual, Reference Guide, joystick, data recorder, loads of programs and mags. Good condition £200. R Mann, 5 Carlisle Road, Slough, Berks, Tel: 34123.

IBM 3982 Golfball business printer, 15" long carriage plus IEEE-488 (Pet) interface (G.R. electronics, Newport). Printer measures 20" x 11" x 9". £50 ono. Dartford (0322) 24261. 52 Weardale Avenue, Dartford, Kent.

Commodore joystick, hardly used. Comes with a free imagine game of your choice, only £6. Tel: (08832) 3563.

Vic-20 games, Skramble, Nightcrawler, Ski-Run, Space Phreeks, all run on unexpanded Vic. Originals £3.50 each or all four £12. Canterbury (0227) 58529.

64 Easy Script for sale, brand new, never used, any offers considered. Salisbury 20154, Jason Kendall, 55 Queen Alexandra Road, Salisbury, Wiltshire SP2 9LL.

Word Craft 20 word processor for Vic-20. Cost £125, accept £50 for quick sale. Tel: 01-953 7320.

Commodore business system, 8032 computer, 8050 dual disk drive, 8027 daisy wheel printer £1100 ono. (0223) 314517 after 7pm.

64 tape indexer. Are all your tapes mixed up? Then you need a 64 tape indexer, keeps index of programs on tape, easily amended. Send £5.00 to: Alan Williams, 16 Hedge Hey, Runcorn, Cheshire WA7 2HP. Phone: (09285) 67734. 6-8pm.

Commodore 64 brand new, still in box, bargain at £190. Also Acorn Electron, same price and condition. Peter Nicholson, 33 Fern Hill Road, Shipley, Tel: 580169.

Vic-20 games for sale. All originals, half price or less. Write or telephone to: 6 Oakwood Avenue, Elgin, Scotland, (0343) 7347. Ask for Paul, after 5pm.

Vic-20 16K RAM, cassette recorder, machine code monitor, Super Expander, 4 cart. and several cassette games, motherboard, Ref Manual, joystick, worth £300 plus, will sell separately or for £150. Phone: (0308) 56504.

COMMODORE user

Ad – Index

Commodore User is published twelve times a year by EMAP Business and Computer Publications Ltd.

Subscriptions and Back Issues are handled by B.K.T. Subscription Services, Dowgate Works, Douglas Road, Tonbridge, Kent TN9 2TS: Telephone 0732-351216

Annual subscription (UK) £12.00, (Eire) £IRL 17.00, (Europe) £18.00, (Rest of the World) £32.00

Printed by Garrod & Lofthouse Ltd, Crawley; Photosetting by PDQ, London N10, telephone 01 444 0359; Reproduction by Elan Litho Ltd, London EC2. Distributed by Associated Newspapers.

ISSN 0265-721X

CBM64 software to sell or swap. Includes Jumpman, Aztec Challenge (American) and Booga-Boo, Falcon Patrol, Scuba Dive, Bitmania, Star Command, Armageddon, Cosmic Convoy, all originals plus others such as Snooker, Jumpin Jack, Post Paid. Tel (0527) 24340.

Imagine games worth £11, Wacky Waiters, Frantic, for only £6. Apply to: 6 Pennine Court, Doxford Park, Sunderland SR3 2HP. Tel: after 5pm Sunderland 281207.

Wordcraft 40 (Audiogenic) word-processor on cartridge, easy handbook, unused. Cost £89.95. Accept £50 or offer. Tel: 01-427 7052 eves.

64 software for sale: Simons' Basic £25; Loderunner (disk) £15; Witness (disk) £20; Aztec Challenge (disk) £7; Lazarian (cart) £7.50; High Flyer (disk) £7.50; all originals; Tel: 01-954 4548 ask for Gavin.

Stack Light Rifle for sale: hardly used, three games, for either Commodore computer, £25. Contact: Justin at 41 Beech Tree Road, Holmer Green, High Wycombe, Bucks. Tel: High Wycombe 713031.

Brand new unwanted software for CBM64. Ring of Power £7.00. Who Dares Wins £3.00, Paratroopers £3.00, Super Blitz £3.00, Mr Wimpey £4.50. Elliot Products, 50 Brynawel, Brynmawr, Gwent, S Wales.

Vic-20 Starter Pack, 16K RAMpack, books, dust covers, £100. Software worth over £100 also available. Mark Turner, 6 Riverside Walk, Midsomer Norton, Bath, Avon. Telephone: 0761 415294.

Vic software for sale, Arcadia, Catcha Snatcha, Skramble (joystick) £2, Panic, 3D Time Trek (16K) (joystick), Dungeons (16K) £3. Cosmic Cruncher, Avenger £5. £20 the lot. Phone Pete 01-524 6722.

CBM64 software swap. Cassette only. Arcade, Adventure, Utilities and Educational. Phone: 041-812 3130, ask for Mel.

Vic-20, manuals, 16K expansion, Super Expander, Programmers Aid, Programmers Reference Guide, 7 cartridge games, over £200 of software etc. All in superb condition. Bargain at £200 ono. Tel: 0272 640637.

Complete Vic-20 Starter Pack: computer, tape deck, 16K RAMpack, joystick, books and £180 of software etc. Cost as new over £370. Will accept £180 ono. Telephone Wakefield 270690 evenings.

Vic-20 software, Programmers Aid £25.00, Vicmon £25.00, Complete with instructions, Fruit Machine cassette for unexpanded. £4.50 Phone 0234 43400 evenings.

Zork 1 The best ever C64 disk adventure, map and hints book, complete cost £38 new. Swap for any other Infocom adventure or sell £20. Phone: Noice, Cosham (0705) 379626.

Vic-20, C2N datasette, 16K RAM, joystick plus games including Cosmic Cruncher, Arcadia, Frogger, dust covers, magazine articles and programs, latest Input magazine. Phone: 0268 777885. £120.

64 software: Grandmaster Chess £15. BC Basic £15, Scramble £6, Golf £5, Arcadia £5, Snooker £7, Pilot 64 £6, Galaxy £6. All brand new! E Malik, 15 Cambridge Road, Wigmore, Gillingham, Kent ME8 0JF.

Simons' Basic cartridge plus book (boxed) £30.00. Easy Script word processor, disk plus book (brand new) £45.00 both for C64. Phone 01-656 7838 evenings and weekends.

Commodore 64 Simons' Basic £40.00. Stack Centronics Interface £25.00. Joystick £5.50. M Cheng, 41a Fonthill Terrace, Aberdeen, Scotland AB1 2UR.

CBM64 software for sale, Egbert, Mothership, Bitmania, Crazy Balloon, Rollerball, Purple Turtles, all £5.00 each. Swap Hobbit for Quickshot Joystick. Tel: Market Drayton 57129. P Rushton, 2 Fairfields Road, Fairfields, Market Drayton, Shropshire.

Commodore 64 software to swap. Over 130 games cassettes and cartridges. Lots of American software. Send list to Martin Walker, 9 Meadowbank Terrace, Edinburgh EH8 7AR or phone 031-661 9518.

Imagine games: Frantic, Arcadia, Wacky Waiters, valued at £16.50, will accept £10. Apply to: G Lawson, 6 Pennine Court, Doxford Park, Sunderland SR3 2HP. Tel after 5pm 281207 (for Vic).

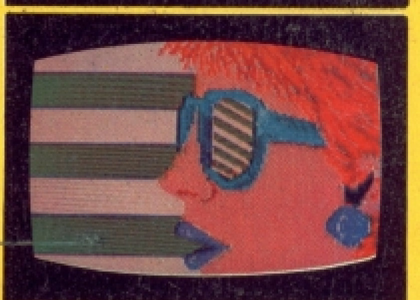

Taskset & commodore 64
POSTER PASTER
NEW
Seaside SPECIAL
Cassette £6·90
Disk £9·99
Available Worldwide
JAMMIN SPECIAL
BOZO'S NIGHT OUT
PIPELINE
GYROPOD
Taskset Ltd
13 HIGH STREET BRIDLINGTON YO16 4PR
ACCESS ORDERS (0262) 673798 24 HOURS
Dealer enquiries welcome (0262) 602668
TASK SET!
THE BUG STOPS HERE!

KoalaPad™ TouchTablet

JUST PICTURE IT!









JUST PICTURE IT - BEING ABLE TO DRAW YOUR OWN HIGH RESOLUTION GRAPHIC DESIGNS ON YOUR COMPUTER SCREEN WITHOUT HAVING TO WRITE A PROGRAM . . . !

Well, now you can - with the amazing Koala Pad from Audiogenic!

The Koala Pad touch tablet provides the direct link between you and your screen! It plugs into your Commodore 64 and lets you paint directly onto the screen with a selection of brush sizes and a choice of 16 colours and 16 shades from your software pallette.

But that's just the beginning - because every Koala Pad package includes the incredible Koala Painter software which makes it child's play to . . .

- ***Fill outlines with a colour!***
- ***Draw straight lines!***
- ***Make frames!***
- ***Draw circles!***
- ***Plot radians from a point!***
- ***Move objects around!***
- ***Copy shapes!***
- ***Create mirror images!***
- ***Zoom in on an area!***
- ***Swap shapes between two pictures!***
- ***Save your pictures to disk or tape!***

The program is controlled entirely from the tablet by moving a cursor arrow around to the different menu option. An optional Programmers Guide is also available to tell you how to incorporate Koala Pad pictures into your own programs.

Now you don't have to be an experienced programmer to produce real high resolution graphics on your computer - the Koala Pad from Audiogenic makes it as easy as a pencil and paper. Just picture it!

Available with Cassette or Disk software for the commodore 64
From all good computer shops - or direct from Audiogenic - just fill in the coupon!

Please send me .... (QTY) Koala Pad Disk/Cassette*. I enclose cheque/P.O. for ....
Commodore 64 Disk or Cassette £79.95 †

*Please charge to my Access/Barclaycard/Trustcard account no:
*Delete/complete as applicable

Signature

Mr/Mrs/Miss

Address

†Price subject to change without notice

THE KOALA PAD IS A PRODUCT OF
Koala™ Technologies Corporation

Exclusive distribution in U.K. and Eire by

Audiogenic LTD

P.O. BOX 88, READING, BERKS.